SEPTEMBER 1959

National SAFETY NEWS

The Workers Speak Up

"Non-slip" surfaces Breaking Down...Wearing Out?

Looking for Permanence ...and Low Cost?

TRY NEW NON-SKID M-S-A® DURA-GRIP...IT STAYS DOWN

We think it's high time safety and maintenance men had a low-cost, non-skid safety surface that really stays down. That's why MSA now markets Dura-Grip.

New M-S-A Dura-Grip puts enduring safety underfoot. And it really *does* stay down. On properly prepared surfaces, this anti-slip compound can wear for years, won't come up. No more on-again, off-again adhesive problems with this one.

The tenacious bonding agent is a special polyurethane compound proved superior in actual exposure tests. Hard, protruding aluminum oxide grit puts abrasive teeth in the rugged-duty locking coat.

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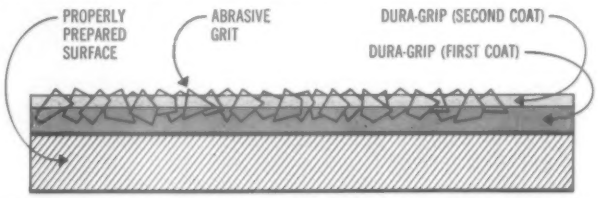
Slip-proofs stairs, floors, ramps, catwalks, shower rooms, entrances and transportation equipment. This *one* compound does the job because it's so universally resistant. Resists acids, alkalies, greases, oils and solvents.

Brush it on or roll it on. Goes on in a jiffy. Cures fast: 6 hours for light traffic; 16 hours for heavy traffic. It's neat and attractive. Cleans quickly with simple sluicing. Costs less than many of the so-called "bests."

Your choice of colors in black, gray, yellow or red. Write for price and delivery information and new M-S-A Dura-Grip Bulletin. Mine Safety Appliances Company, Pittsburgh 8, Pennsylvania.

MSA® SAFETY EQUIPMENT HEADQUARTERS



Edges, sides, and corners of tiny grit particles, impregnated in the resin bonding coat, protrude enough to form an absolutely slip-proof surface. Second locking coat permanentizes the grits. This is the Dura-Grip sandwich.

Every day—in many ways—MSA products safeguard millions of lives

HY-TEST *Spectacular!*

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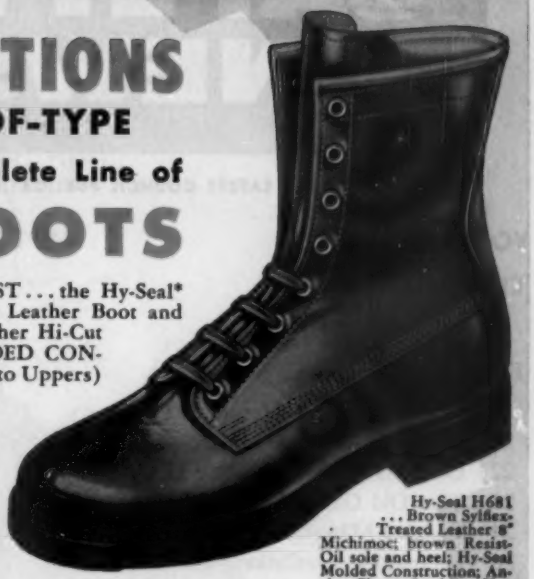
Here are the newest at HY-TEST . . . the Hy-Seal* H681 Sylflex-Treated Michimoc Leather Boot and the H682 Quilon-Treated** Leather Hi-Cut Boot! Both are made by MOLDED CONSTRUCTION (Soles Vulcanized to Uppers) . . . water repellent and chemical resistant . . . soft leather uppers and sturdy soles. These boots are flexible, strong, long-wearing, light on the foot, comfortable and SAFE!

*Other Hy-Seal Numbers: H601 Brown Oxford and H641 Brown Shoe.

**Other Quilon-Treated Numbers: H602 Brown Oxford and H642 Brown Shoe.



Hy-Seal H681 . . . Brown Sylflex-Treated Leather 8" Michimoc; brown Resist-Oil sole and heel; Hy-Seal Molded Construction; Anchor Flange Steel Box Toe . . . D, E 5-12.

H682 . . . Brown Quilon-Treated Leather 8" Hi-Cut; brown Resist-Oil Grit sole and heel; Molded Construction; Anchor Flange Steel Box Toe . . . . D, E 6-12.

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LARGEST SELECTION IN SAFEty BOOTS

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National SAFETY NEWS

A NATIONAL SAFETY COUNCIL PUBLICATION

VOL. 80, NO. 3 SEPTEMBER 1959

EDITORIAL

FEATURE ARTICLES

DEPARTMENTS

NATIONAL SAFETY COUNCIL

Chartered by the Congress of the United States

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NATIONAL SAFETY NEWS is published monthly by National Safety Council. Printed in U. S. A. Entered as second class matter June 21, 1921, at the Post Office at Chicago, Illinois, under the act of March 3, 1879. Subscription rate: $6.50 a year. Single copies $1.10. All prices subject to 10 per cent discount to National Safety Council members. Quantity prices for yearly subscriptions and single issues on request. Member Audit Bureau of Circulation.

COVER

Open-forum type safety meetings give everyone at Ryan Aeronautical Company a chance to have his say about hazards and preventives, good housekeeping and work practice improvement. It's impossible to say whether the "town hall" format is responsible for Ryan's record, but their frequency and severity rates are among the lowest in the aeronautical industry.

37,400 copies of this issue were printed

....tough here!

GLOVE-SOFT — SURPRISINGLY LIGHT

—but tough as nails! The 8-inch upper is supple Quilon-tanned leather that repels water; resists acid and caustic; pampers the feet; is extraordinarily light and flexible. Even the arch is foam-cushioned for easy comfort. The sole is Lehigh's super-tough Miragum that outwears ordinary leather and compositions as much as two to one, even under the most gruelling conditions (See inset). It's a BIG dollar's worth of boot—in service; in pleasure. Steel toe of course.

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CONTACTS THAT HELP

THE PERSON insulated from outside ideas soon develops a bad case of mental staleness. Editors are particularly susceptible to that disease, but it can strike anyone—including safety men.

After all, these two occupations have much in common. Both are concerned with getting ideas across to people and, it is hoped, stimulating action in worthwhile endeavors.

If an editor never studies contemporary publications and never discusses problems with fellow editors, his own book becomes dull and inbred. And the safety program shut off from the stimulus of outside ideas and points of view soon loses its freshness. Association with others in the same line of work is always helpful.

The safety man has duties far beyond the designing, supervision, and inspection of physical protection. He must keep management, supervisors, and workers interested, and this will tax his ingenuity to the limit. He must deal with men as well as machines, and with man's constant inclination to choose the dangerous way when the right way involves physical or mental effort.

Few persons are actually hostile to accident prevention; they admit it's a good thing and let it go at that. Their criticisms generally are directed toward safety techniques and the men who are trying to make them work.

Winning and holding the support and interest of the apathetic is a man-sized job. Much of the safety man's help will come from his own company, but every organization, large or small, feels the need of outside sources of inspiration and knowledge.

We're all looking for concrete ideas that can be put to profitable use. But in our desire to be *practical* we must not overlook the less tangible benefits of association with others—the freshening of our own enthusiasm and interest.

Safety men find such help in the activities of the National Safety Council, through their sectional organizations, regional conferences, monthly meetings of ASSE chapters and local safety organizations, through training courses at Council headquarters and through correspondence with fellow members and the headquarters staff.

And for thousands each year, the great safety energizer is the National Safety Congress. Many a safety veteran has testified that his appreciation of the scope and significance of the safety movement dates back to his first Congress. And they keep coming back year after year to increase their knowledge and maintain their enthusiasm.

new! POLY-D *gloves by Wil-Gard*

POLYETHYLENE DISPOSABLE

10 QUALITY LINES
1 DEPENDABLE SOURCE

INDUSTRIAL GLOVES
Poly-D
Natural Rubber
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LINEMEN'S GLOVES
Natural Rubber

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*BIO-SORB DUSTING POWDER IS A REGISTERED TRADEMARK OF ETHICON, INC.

New Wil-Gard clear Polyethylene, five-fingered Disposable Gloves offer the most convenient hand protection ever developed. Lightweight, flexible and moisture-proof, they protect hands from scores of chemicals, powders and resins . . . safeguard precision parts against perspiration corrosion.

Poly-D Gloves feature stronger, heat-welded seams with super-smooth edges that provide excellent resistance to snagging and tearing. Pre-powdered with Bio-Sorb*, they're extremely easy to slip on or strip off. Ambidextrous, you can wear them on either hand. For full details on Poly-D—the newest member of the famous Wil-Gard family—call your nearest Wil-Gard distributor.

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new products, new ideas for better fire protection

ANSUL

FIRE FIGHTING EQUIPMENT
REFRIGERATION PRODUCTS
INDUSTRIAL CHEMICALS

Study Fire Safety of Plastics in Buildings

A $19,000 study, examining the fire safety of plastics used in buildings, is now under way at Southwest Research Institute, San Antonio, Tex., by the Manufacturing Chemists' Association, Inc.

The one-year pioneer project will investigate plastics used in buildings, relative to traditional materials, from the viewpoint of fire safety as related to building-code regulation.

Included in a steering committee for this project are Stewart D. Barradale, Norman I. Turner and Calvin H. Yuill of Southwest Research Institute; James Stranch and William J. Sauber, both of MCA's Fire Testing Subcommittee; William E. Manring, MCA Plastics-in-Building Committee; and William Demarest, MCA Plastics-in-Building Director.

Southwest Research fire technologists and research architects will use plans for two proposed buildings—one for a multiple-occupancy building, such as an office building, and the other plan for a one-family house.

The study will determine elements or components where plastics might be used and which could be considered a fire hazard. Methods used in building regulations to evaluate such materials and their uses are also to be investigated.

Criteria of fire tests and standards will be considered, as well as small-scale vs. large-scale tests, availability of test facilities, presentation of test results, and trends in fire testing.

Port Is More Hazardous Says Sea Captain

"Ships are in much less danger at sea than in port," says Captain Yves Robichon of the French Line's *Flandre*.

Quoted in *France Actuelle*, Captain Robichon continues: "Almost all accidents happen in port. Another ship may bump into yours. And if a fire should break out, there are fewer personnel aboard to cope with it. At sea with a full complement of trained and tested crew, we are ready to deal with anything and to have quick success in overcoming any emergency."

OFF THE JOB

Safety programs for plant and community

By HARRY C. JOHNSON

NSC Staff Representative, OTJ Safety Committee

"UNCLE" Harry Johnson shows toy lawn mower presented to him by the Automotive and Machine Shop Section.

How to Hunt— And Return Safely

Many workers like to hunt in their off-job hours. This hobby usually involves gasoline and gunpowder. And in carrying firearms in his car on the way to the shooting site, the off-job hunter often creates situations that may result in injury or death.

With 16 million hunters on the road, each hunting season sees the same needless accidents repeat themselves. Yet, one simple common sense rule might prevent these tragedies: *In a car, a sportsman's guns must be unloaded.*

Check and double-check on this. Put the gun in a protective case, or securely wrap the weapon, and place it in the trunk compartment. This is especially recommended, if the trip to the shooting grounds is more than a very short one.

In some states it is against the law to carry a sporting firearm loaded in a car. From a safety standpoint, it should never be done —law or no law.

Additional precautions call for careful handling of the gun when putting it into or removing it from the car. Even though you have obeyed the primary rule, always treat *every* gun as if it were loaded. Have the action open, and be sure the muzzle is pointed in a safe direction; never point it at a companion or at yourself.

An instructive packet of firearm safety information is *Nine Ounces*, prepared by the National Rifle Association of America, which operates programs aimed at firearms accident prevention. This packet is available, on request, to any teacher (or safety engineer) active in this branch of safety education.

Nine Ounces includes: "Firearms—A Presentation Outline"; "Hunter Safety Handbook"; "Hunter Safety Instructor's Guide"; a magazine article reprint "Making Hunting Safer"; and a booklet "Telling the Story of NRA."

For student distribution there are in the packet a folder "Guns Don't Hurt People . . . but . . . Sometimes People Do—with Guns" (20 copies); and a check list—"Home Firearms" (10 copies).

This material is free. Send requests for *Teachers Safety Packet* to National Rifle Association, 1600 Rhode Island Ave., N.W., Washington 6, D. C.

BELOW: Unloaded, too. Now he'll cross the fence several yards away from the gun . . . the safe way.

LEFT: Be sure to check your insurance policies before crossing a fence this way.

ESSENTIALS OF SAFE HUNTING

Know Your Gun

Have gun, ammunition in good condition.
Sight-in gun before hunting.
Learn to be a good shot.

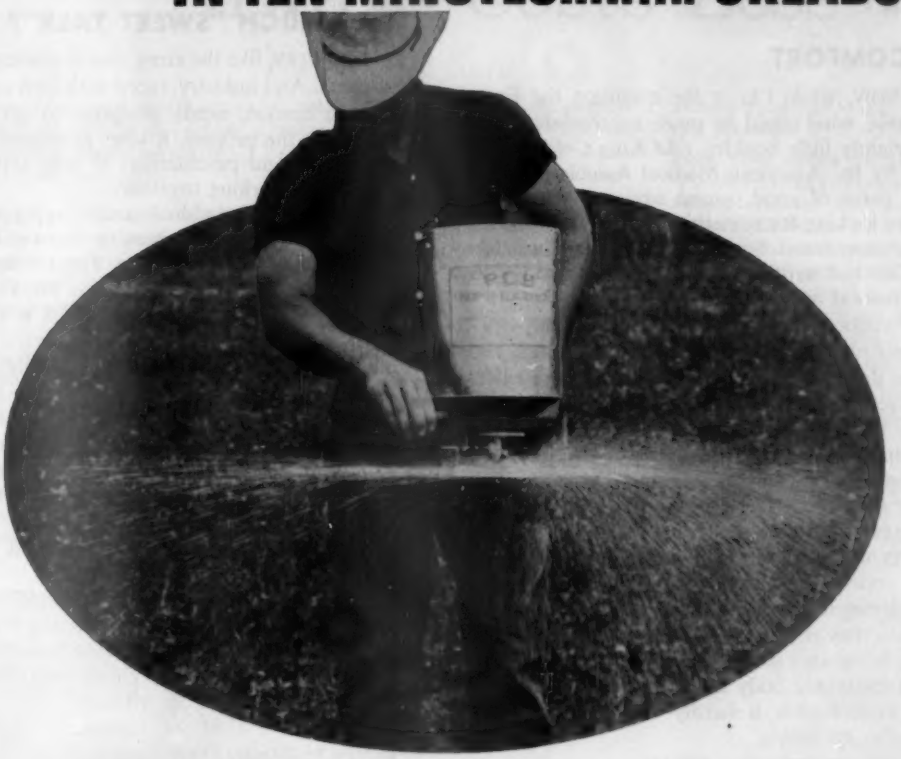
Handle Gun Properly

Treat every gun as if it were loaded.
Always point muzzle in safe direction.
Be sure of target.
Keep finger out of trigger guard until firing.
Practice self-control.
Open the action; unload guns not in use.
Store hunting guns in safe place.

Fulfill Duties as Safe Hunter

Follow rules of safe hunting.
Learn to identify game.
Know, observe game laws.
Be courteous.
Promote friendly hunter-landowner relations.
Insist companions observe these rules.

ANY MAN CAN WEED-PROOF 10,000 SQUARE FEET IN TEN MINUTES...with UREABOR



–just apply **UREABOR**® *and you can forget about weeds for the season!*

Think of the savings—in time *and* money—this weed killer offers you! UREABOR is the special granular weed killer meeting all requirements of industrial users. A little does a lot! One DRY application of only 1 to 2-lbs. per 100 sq. ft. creates weed-free areas anywhere for a whole year! UREABOR is safe, effective, economical and convenient. It's always ready for use direct from the bag—in the easiest possible way—to destroy weeds and protect your property from grass fires.

A SPECIAL SPREADER simplifies and speeds UREABOR applications at low rates with accuracy. Spreader holds enough UREABOR to treat 1250 sq. ft. without refilling; weighs a mere 6 lbs. Width of the swath can be adjusted.

UREABOR IS 2 HERBICIDES IN 1... The plant-destroying powers of 2 proven herbicides are combined in this granular complex of sodium borates and substituted urea (3-P-Chlorophenyl, 1-1, dimethylurea) to yield superior, non-selective results.

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THE SAFETY VALVE

Nothing human is alien to me

—TERENCE

COLD COMFORT

RIGHT NOW, while I'm in the condition the French call *enrhumé,* what could be more appropriate reading than a sprightly little booklet, *Old King Cold,* recently published by the American Medical Association. It offers eight pages of good, sound advice.

If you're looking for something new and miraculous, you'll be disappointed. Some of it sounds as though my grandmother had written it. And much of granny's lore now has medical approval.

For prevention, we are warned to eat properly to keep up our resistance, avoid drafts, chilling, and overheating, to dress warmly and wear our rubbers when it rains. We're also told to avoid people with colds, which seems just a bit unrealistic in this crowded age.

And what to do when this curse of civilized living overtakes you, when you're sneezing and sniffling and your nose and throat feel raw, and your mental processes have ceased to function?

Don't try to be an iron man, says the booklet. Don't endanger yourself and others by ignoring your symptoms and trying to carry on as usual.

But when they're already shorthanded at the shop or office due to ravages of the bug, you feel you ought to drag your miserable body down to work, even though your net contribution is hardly enough to offset the germs you're spreading.

Here's the recommended routine:

Take a hot bath to dilate the small arteries in your skin and relax your muscles.

Drink a glass of hot lemonade or milk. It doesn't mention adding rum or bourbon, but it doesn't forbid it.

Go to bed.

Eat sensibly; don't starve yourself or overindulge. Don't expect a liquid diet to flush away your symptoms. Be guided by your thirst.

And here the booklet parts company with Granny. A laxative used to be one of her routine remedies, but now doctors think it's unnecessary in most cases.

Anointing the throat and chest with goose grease and turpentine used to be a popular treatment. Better-smelling unguents with a petroleum base are less repulsive, but doctors are skeptical about their effectiveness. When applied by loving hands a grease job is rather soothing.

Be cautious about taking cold tablets, we're told. Some of them have undesirable side- or aftereffects. Save the antibiotics for a real emergency. The booklet doesn't even mention aspirin.

And don't put your trust in vitamins to prevent a cold. If your diet is reasonably varied, you're probably getting enough. If you have a real vitamin deficiency, that's something different.

There's nothing alarming about the AMA's advice. They don't urge you to call Doc at the first sneeze. If you have a high or persistent fever, or colds occur too often, get medical counsel. But for most cases simple remedies ought to do the trick.

At any rate, your cold will stick around for five to eight days. Seems to me I could sense an undercurrent of fatalism in these words of medical wisdom.

TOO MUCH "SWEET TALK"?

INDUSTRY, like the army, has its malingerers and goldbrickers. And industry, faced with high costs and a competitive market, needs discipline to get out the work. To aid in the process, it hires personnel directors, psychologists, and psychiatrists to help solve problems of living and working together.

Putting an individual under a psychological x-ray can often help in straightening him out but the process must be used with discretion. The average person, quite naturally, resents prying into his private life.

Is there too much pampering of workers?

In an article in a national magazine, a professor from one of the country's leading universities declared that too much "human relations" has come between us and our ability to get the job done. Unfortunately, I didn't see the article; I read only a brief approving quote in a magazine for operating executives. It was headed: "Cure for Poor Work; Can the Sweet Talk."

It quoted the professor:

"We think less about how to do a good job than about how to be a good guy.

"A boss needs to see that an employee does a good, honest day's work. The boss should be able, if necessary, to bring a worker up that standard without any concern as to whether his childhood is unhappy or he is having trouble with his wife.

"The . . . evil in the 'human relations' fad is its repeated violation of the dignity of the individual. It becomes a technique for manipulating people . . . analyzing motives . . . judging lives.

"Unless we can restore our toughness and our ability to get a job done, while sustaining human dignity, time will run out on us. We have to learn how to be not only kindhearted but hardhearted."

A few years ago a baseball manager named Durocher remarked that "nice guys don't win pennants." Well, I can think of two or three nice guys who did, and some of those who were tough on the field were understanding in the locker room. They wouldn't tolerate loafing but they recognized normal human shortcomings.

A human relations program that degenerates into paternalism isn't good for either the employee or the company. But trying to solve all problems by cracking the whip is as much an affront to human dignity as oversolicitude.

Of course, there is always danger of distortion when a brief passage is lifted from context and I suspect the professor wasn't quite as ruthless as he sounds.

Carman Fish

Management's own tests give you proof...*

Better Hand Protection Always Costs Less

No need to spend further time wondering which work gloves offer the safest hand protection at the most reasonable cost to you or your employees.

Edmont, developer of modern coated gloves for every job from steam boiler making to rocket fuel handling, offers the kind of fact-and-figure proof that safety-conscious management expects ... factual case history results of on-the-job comparison tests made by America's leading corporations. For example:

CASE No. 639: *Feeding burr-edged metal sheets into cutting machine, an Edmont-recommended glove gave 2½ times longer protection than leather gloves previously used ... cut costs 55%.*

CASE No. 681: *Using MEK on aircraft paint-stripping operation, an Edmont-recommended glove gave 3 times longer protection than ordinary neoprene gloves previously used.*

CASE No. 694: *Handling slit steel, an Edmont-recommended glove gave 7 times longer protection than 18 oz. double-palm cotton gloves ... cut costs 69%.*

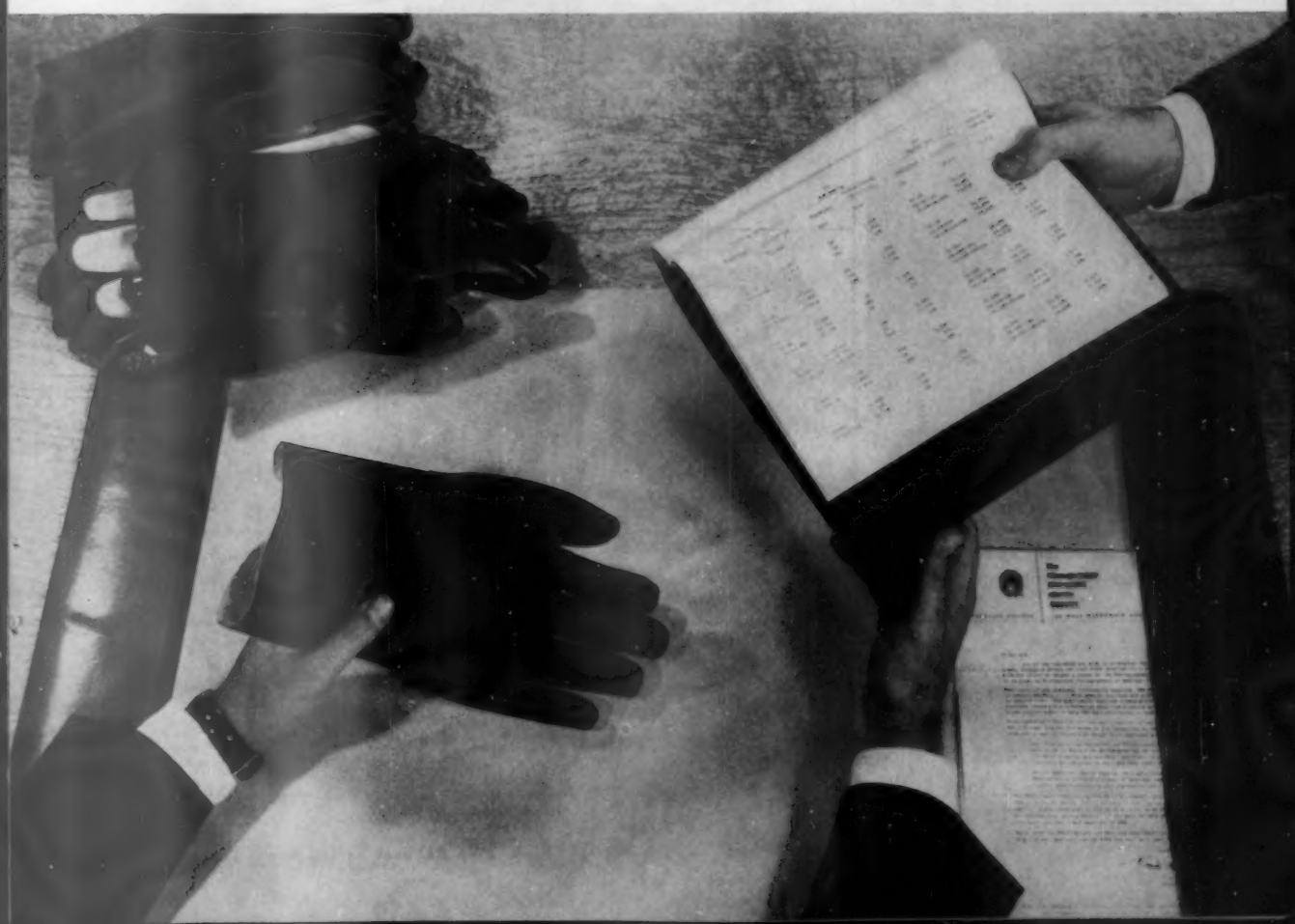
Thousands of cases like the above prove that management *can* improve safety and reduce gloving costs at the same time. Edmont's new Super Neox glove, which was used in the above tests, is a neoprene-coated glove with positive non-slip grip, wet or dry. Its tougher compound, of reinforced neoprene, also provides maximum all-around resistance to oils, solvents, cuts and abrasion.

FREE TEST OFFER TO LISTED FIRMS: We make many types of neoprene, natural rubber and plastic coated gloves to fit different job requirements. Tell us your operation, materials handled, temperature condition. We will recommend correct glove and send samples for on-the-job testing. Write Edmont Manufacturing Company, 1205 Walnut Street, Coshocton, Ohio. In Canada, write MSA, Toronto.

**Company names and full details on request.*

Edmont

JOB-FITTED GLOVES



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FogFOAM • SOLID FOAM STREAM
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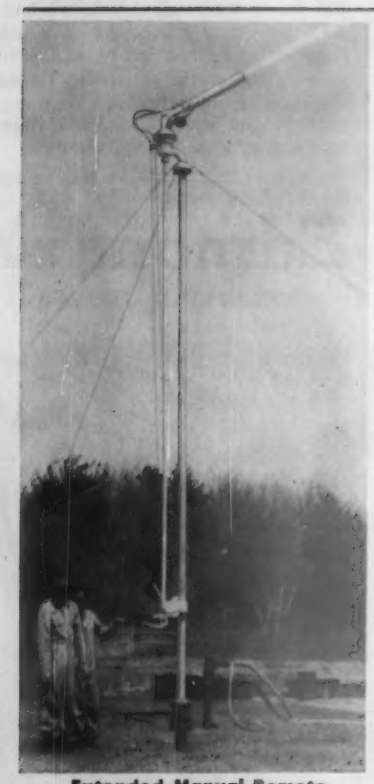
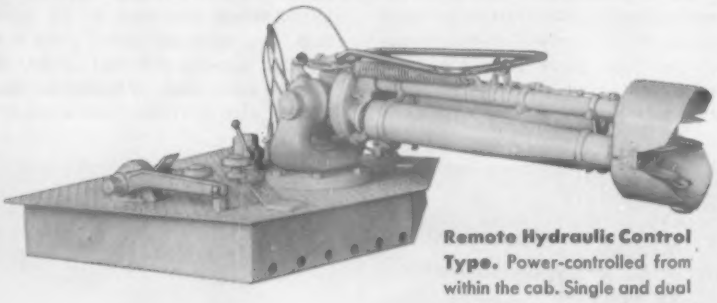


Extended Manual Remote Control Type. Turret nozzles extend 10 to 20 feet above remote control station on deck or ground on standard units... greater remote extensions for special applications.



Remote Hydraulic Control Type. Power-controlled from within the cab. Single and dual models. Widely used on air crash rescue fire-fighting trucks.

Direct Manual Control Type. Gives fire fighters "out-in-the-open" control from cab roof!

Washington, D. C. National Airport

U. S. Air Force Type 0-12

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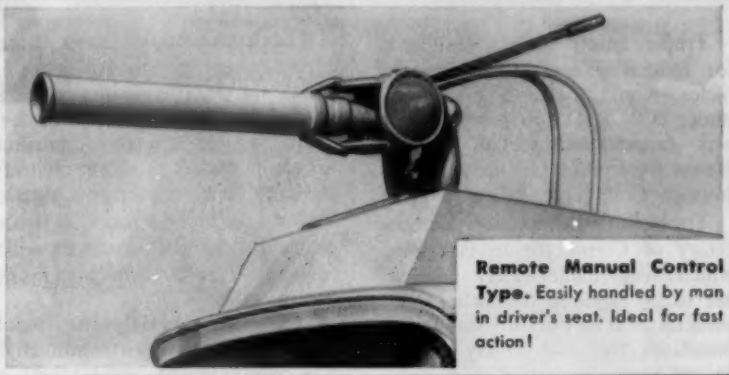
Socony Mobil Refinery, Augusta, Kan. | Fairchild Aircraft Corp. | Cuba, N. Y. Fire Department | Royal Canadian Navy | Dayton, Ohio, Airport

Specialty Turrets on the Market!

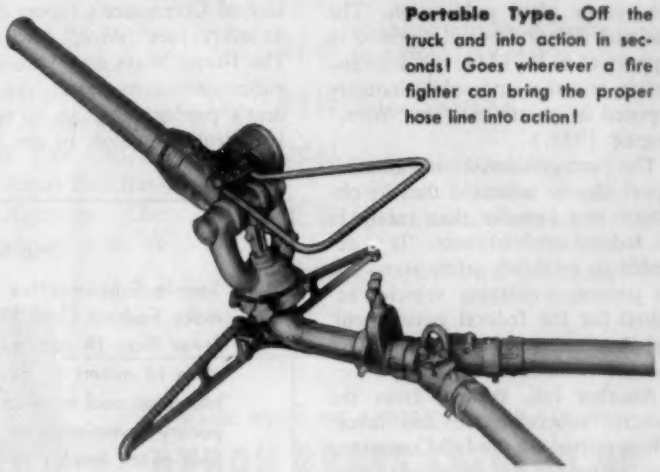
On the truck or on the ground, fire fighters can hit fires *harder* using ROCKWOOD Turrets! At airports and refineries . . . in municipalities and throughout industry . . . these advanced-design fire-fighting aids are constantly proving their ability to extinguish fires faster.

The reason is simple. ROCKWOOD Turrets provide plenty of both volume *and* versatility. They're designed to fight fires four ways: With FogFOAM . . . Solid FOAM Stream . . . WaterFOG . . . Solid Water Stream. What's more, all are easily adjustable on the fire line to meet changing fire conditions.

Produced by the world's largest manufacturer of specialty Fire-Fighting Turrets, ROCKWOOD Turrets are designed to give fire fighters an extra edge of efficiency on *most* types of fires. Make sure your department has the best tools to work with. Get full details on the complete line of fire-fighting products. Mail coupon now.



Remote Manual Control Type. Easily handled by man in driver's seat. Ideal for fast action!



Portable Type. Off the truck and into action in seconds! Goes wherever a fire fighter can bring the proper hose line into action!

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A Division of the Gamewell Company
Portable Fire Protection Division
463 Harlow Street, Worcester 5, Massachusetts

Please send me your illustrated booklet on Rockwood Fire-Fighting Products

Name.....*Title*.....

Company.....

Street.....

City.....*Zone*....*State*.....

Circle Item No. 8—Reader Service Card

WIRE FROM WASHINGTON

By **HARRY N. ROSENFIELD**, Washington Counsel, National Safety Council

SAFETY, in one form or another, has become a major preoccupation in Washington.

This report is an information service. Publication does not imply National Safety Council approval of or opposition to any legislation mentioned

Traffic Safety. Safety standards for federal passenger-carrying vehicles would become mandatory under H.R. 1341 (Roberts), which was favorably reported by the House Committee on Interstate and Foreign Commerce.

The bill would require the Secretary of Commerce to determine which "reasonable safety devices" are to be required on such federal vehicles, and to publish commercial standards for such safety devices in one year.

The standards become effective 1¼ years after publication. The National Safety Council testified in support of H.R. 1341; the administration and the automobile industry opposed its enactment (see "Wire," August 1959.)

The congressional committee's report clearly indicated that its objective was broader than safety in the federal establishment. "It is desirable to establish safety standards for passenger-carrying vehicles acquired for the federal government, and thus promote the manufacture and use of safer vehicles."

Another bill, coming from the Roberts subcommittee and favorably reported by the full Committee on Interstate and Foreign Commerce, is H.R. 8238 (Schenck).

In its original form, the proposal would have established mandatory standards. As amended by the committee, the bill provides for a study by the U. S. Public Health Service, and a report to the Congress in two years about the safety effect on human health of substances discharged into the atmosphere by motor vehicle exhausts.

The committee's report stated it recognizes "the urgent need for additional and expanded research on the problem to determine how motor vehicle exhausts contribute to air pollution and the harmful levels of concentration endangering human health. This research is necessary to establish criteria on which engineers can develop better control methods."

H.R. 8328 (Halpern) would establish an Interdepartmental Highway Safety Board, substantially on the pattern proposed in the Secretary of Commerce's report on traffic safety. (see "Wire," April 1959.) The House Ways and Means Committee voted to reject the President's proposal for an increase of 1½ cents a gallon in the federal motor fuel tax, to cope with an impending deficit in the Interstate Highway Construction program. (Since this action, the House Ways and Means Committee has voted to raise the federal motor fuel tax another penny—to four cents a gallon.) However, the Public Works Committee questioned the nature and length of delay in the highway construction program.

In testimony before the Ways and Means Committee, Maj. Gen. George C. Stewart, executive vice-president of the National Safety Council, did not take part in the financial controversy, but expressed concern over a stretch-out of the road construction program "because

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THE MONTH IN WASHINGTON

- Senate Subcommittee on Labor concludes hearings on three bills: to make Federal Coal Mine Safety Act applicable to mines employing fewer than 14 coal miners; to authorize closing of mines hiring fewer than 14 miners on danger of disaster, with examination by Bureau of Mines on coal mine safety and economic issues; and to establish temporary commission on coal mine safety to survey safety practices in coal mines employing fewer than 14 miners.

- FAA proposes two rules: one requiring passenger transport aircraft to have airborne weather radar; the other proposal requiring air carriers to control drinking and serving of alcoholic beverages in flight.

- U. S. Attorney General rules the Secretary of Labor can withhold interstate recruitment facilities of U. S. Employment Service from growers failing to give migrant farm workers healthy, safe housing, and prevailing transportation.

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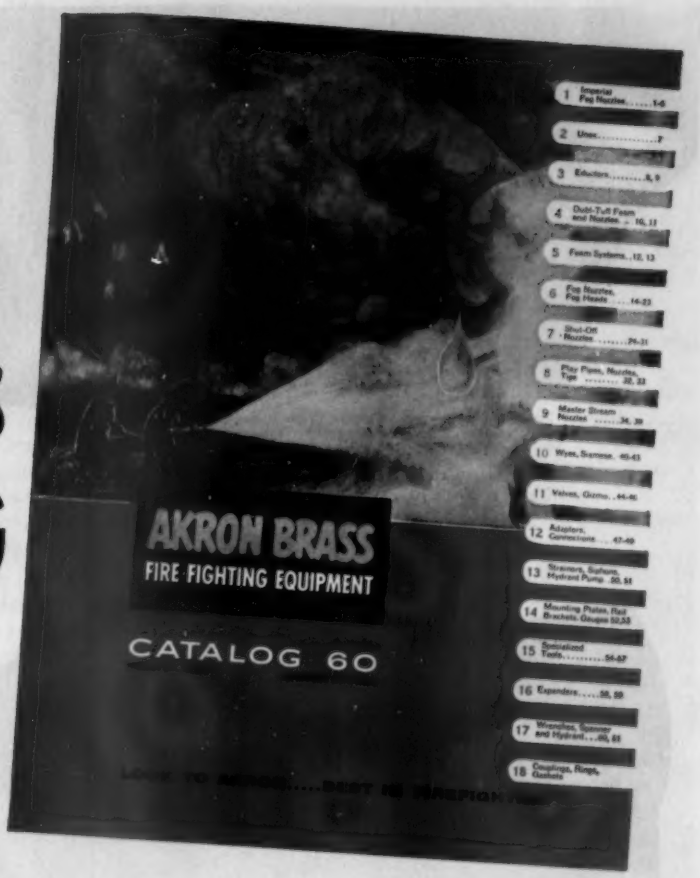

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Circle Item No. 10—Reader Service Card

AROUND THE COMPASS

ACTIVITIES

• PROGRAMS

• EVENTS

By Nils Lofgren

Field Service Department, NSC

Connecticut Commission Adds Assistant

James K. Williams, executive director of the Connecticut Safety Commission, has announced the appointment of John P. Lukens as assistant to the director. Mr. Lukens assumed his new duties on August 1.

Mr. Williams stated: "One of the commission's major objectives is to expand the development of strong community safety councils, commissions, and committees in every city and town of the state.

"The safety commission also plans to intensify its training programs for municipal officials and citizen leaders related to community traffic safety activities. The new assistant to the director will be responsible for planning and coordinating many of the commission's statewide safety programs."

Since 1953, Mr. Lukens has been associate county agent in the University of Connecticut Extension Service.

Successful Session On Moving Injured

This year's Eastern Pennsylvania Safety Conference included a session on transportation of the injured. The session consisted of a panel presentation by three distinguished surgeons and a question-and-answer period.

About 200 persons attended, and because the program was so well received, Harold Seward, secretary-treasurer of the Lehigh Valley Safety Council, has announced a similar session for next year.

The printed program of the conference explained: This session has been arranged to present a new set of standards in transporting of the injured, to decrease mishandling of the injured, to increase use of proper first aid care, and to offer a new textbook which sets forth emergency procedures for ambulance crews, training, equipment, vehicles, and responsibility for ambulance service.

President's Committee Names 9 *Must* Factors

The President's Committee for Traffic Safety recently declared nine factors as indispensable for substantial and continuing success in reducing the toll on our highways.

1. Enactment by every state and community of sound, uniform traffic laws and ordinances.
2. Fair, firm and impartial enforcement of these laws and ordinances by properly trained and adequately equipped state and local police forces.
3. Traffic courts that dispense fair and impartial justice, fostering respect for the law and support for its enforcement.
4. Reasonable but strict requirements for obtaining and retaining a driver's license.
5. Development by all states and communities of adequate and uniform accident reports, and use of this information to determine needs and corrective actions.
6. Stimulation of construction of new highways, and rehabilitation and maintenance of those now existing, using the best engineering techniques to insure maximum safety.
7. Periodic inspection of all motor vehicles.
8. Nationwide instruction of young people in driving practices and attitudes.
9. Progressive improvement of motor vehicle design and construction to afford greater ease in safe operation and greater protection for occupants.

The report emphasized "all of these elements call for a greater degree of continuing voluntary coordination among all public officials who have responsibilities in the field of traffic, and among private organizations engaged in traffic safety work. Special emphasis is needed on coordination between state and local levels."

William Randolph Hearst, Jr., is chairman of the President's Committee.

Safety Briefs

James Sale, former police lieutenant in Reno, became the managing director of the Nevada Safety Council on July 1.

The Tenth Annual Governor's Traffic Safety Conference will be held in Sacramento, Calif., October 7-9.

The Nebraska Department of Health has prepared an attractive and useful brochure listing accident prevention resource materials available from state agencies and other organizations in the state. Films, filmstrips, and printed materials are listed under these categories: Attitudes, Automobile, Bicycle, Burns and Heat, Defense, Disaster, Falls, Farm, Fire, First Aid, Home, Poisoning, Sports and Recreations, and Water. The brochure also includes a suggested calendar of activities for each month.

About 200 persons attended the first Swimming Pool Clinic held by the Seattle-King County Safety Council. The program consisted of classroom panel discussions and pool-side demonstrations. Eight exhibitors displayed equipment.

The Seattle Council also sponsored a Family Safe Boating Clinic June 30, July 7 and July 9, with a registration of 400 persons.

A Military-Public Officials Conference was held in Olympia, Wash., August 17. The General Safety Section of the Governor's Safety Conference is scheduled for October 27-28.

The Sixth Annual Georgia Teen-Age Traffic Safety Conference was held August 10-15 at Georgia Southwestern College, Americus, Ga.

George A. Nothhelfer has joined the staff of the Omaha Safety Council as assistant manager. He was formerly manager of the Safety Bureau of Duluth, Minn., Chamber of Commerce.

DEDICATION PLUS . . .

What a plant manager expects of a safety engineer →

By LINCOLN B. CROSBY

EACH of us could go on for too long a time listing the characteristics and performance expectations of any management man. But I plan to touch on only those things I believe are of particular importance in a safety engineer.

Briefly, let's describe the unusual characteristics of this person and then see how these characteristics fit into the expected pattern of actions and standards of performance. I look for a safety engineer to be outstanding in these ways:

1. *Dedicated* — to safety, without hypocrisy, reservation, or even momentary equivocation.

2. *Sensitive or perceptive*—aware of every event, action, emotion, and pulse beat in the plant and in each employee, as they affect our safety performance.

3. *Creative*—to provide a cure for every safety ill, a prop for every safety weakness, a conscience for every hazardous temptation, and motivation for every safety laziness.

4. *Enduring*—to the point of indestructibility, with an unlimited capacity for frustration.

5. *Courageous*—courage to be dedicated, to stand alone, if necessary, for what is right, to stand and fight and never yield merely because it is easier to follow than to lead.

And lastly, a safety engineer must have a *perpetual happy discontent.*

Now I do not mean that you should have to be discontented to be happy, but I do mean this: you should be happy — satisfied that progress has been made, yet always discontented and spurred by the challenge of a goal still unattained. And, when we talk of safety, that goal is accident-free operation

Before amplifying these essential characteristics of our safety engineer, let's consider the safety department function. In the eyes of a plant manager, the safety office is a *staff office.* The department is not expected to run an accident-free plant single-handed. The line organization runs the plant, assisted by the safety department.

No safety man is vested with absolute authority to shut down equipment, discipline employees, or make operating decisions. But a safety engineer is expected to be involved effectively in getting these and any other safety jobs done through his staff influence, based on his ability, integrity and the respect he has earned in the eyes of line management.

Maybe you think I'm minimizing the job and my expectations by calling the safety department a staff function. A staff job is no picnic, and when I say I expect a safety engineer to be effectively involved in every safety decision, I mean his involvement must guarantee the right decision. What's more, a plant manager wants a safety engineer to tell him and convince him not only what he, the plant manager, wants, but what he should have from you, the safety engineer.

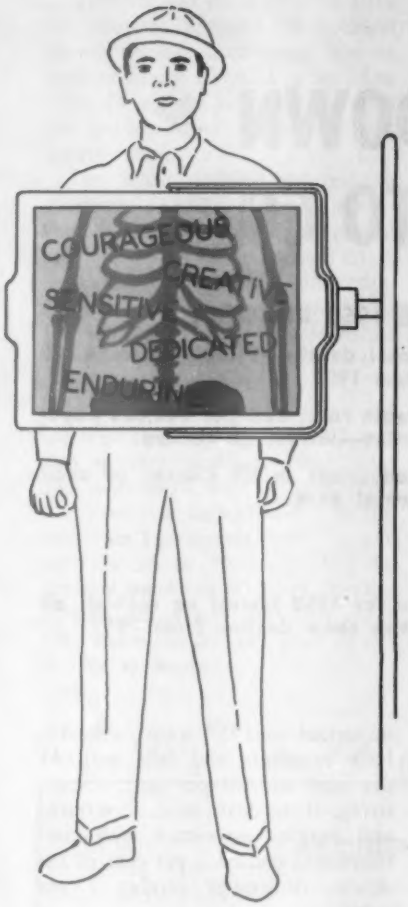
You must crystallize the thinking in the plant in the specialized safety area, and you must influence and guide safety activities throughout the organization. You must tell us what is needed, and justify the means by which you plan to accomplish the program.

A safety department with integrity and ability will influence the *line,* will recognize and discharge its responsibility to operate an accident-free plant. This influence, I believe, is best exerted through such a policy of participation and involvement, which will be outstandingly effective when pursued through all levels of the organization.

Now let's get back to one plant manager's major expectations of a safety engineer. Dedicated . . . yes, 100 per cent, or rather 200 per cent dedicated to safety . . . enthusiastically and unequivocally sold on the meaning and value of good safety performance. Regardless of his background or his future goals, he is a *safety man.*

The safety effort has no place for the uninspired, semi-interested, half-hearted, undedicated men. A memorial to a famous and dedicated man, William Lloyd Garrison, stands in Boston. In the inscription on the monument is a quotation from his writings: "I will not equivocate, I

As plant manager of Monsanto Chemical Company's Plastics Division at Springfield, Mass., Lincoln B. Crosby expected a lot from the safety engineer but didn't expect him to do the job alone. Under this safety-management partnership, the plant established its top record—6,769,000 safe man-hours. In July 1959 he was promoted to director of manufacturing, Eastern Operations, for the Plastics Division. He is currently serving his second term as president of the Safety Council of Western Massachusetts. This article has been condensed from an address before the 1959 Conference of Monsanto Safety Engineers.



will not excuse, I will be heard."

There are times when even a dedicated man is shaken. In Springfield we once experienced a major injury. An electrician suffered burned hands, face, and eyes but was lucky to still have his sight. He had broken the rule requiring safety glasses on maintenance work.

You'd think this would sell everyone who knew the man and the incident. But just one week later, the electrician's father was found breaking the same rule—doing maintenance work without safety glasses. Obviously, you need dedication to go out and convert every last employee at your plant to full-time safety consciousness.

A safety engineer must be sensitive—perceptive. As a symphony orchestra conductor is sensitive to the pitch, tone, and timbre of every instrument, so you must be sensitive to every circumstance, influence, and attitude in your plant . . . perceptive to any change, off beat or discord and be there to offer help to the operating line in restoring safety harmony. You need this sensitivity to know your people and the perception to anticipate their every response.

Every human being feels the challenge of a rule—a safety rule, or the law of averages when you draw to an inside straight. And how do they try to beat the rules? Again, an example from Springfield.

Safety glasses were made mandatory in a polymerization department after a near miss. One man thought he had found a way to beat the rule. He put on his safety glasses, *without lenses*. They were lighter and cooler, and nobody would be the wiser.

A properly sensitive safety engineer, wondering why this man was not sounding off as usual, checked and found out. Now the line is alert to this problem, after having been shown the way by the staff safety assistant. Through your record of service, through the climate of acceptance your abilities can earn, your influence will bring corrective action and support when you see or sense a departure from the straight and narrow safety way.

An orchestra conductor does not make the music; a safety man does not make safety. But, as a conductor puts together a perfect blend of the musicians' talents, if you are sensitive and perceptive, you should guide the line while they put together a safety symphony.

Creative . . . yes, you must be creative. Primarily, safety involves people. People need selling. They need guidance. Yet they resist unskillful and repetitious pressures. Your ability to create new and acceptable safety influences will directly measure your effectiveness as safety engineers.

Strike Out Boldly

If employees resist wearing safety equipment, you'll never legislate their wearing it. But you'll have them running to you to get it, when your ingenuity develops a program that sells it.

Create new means of carrying your safety message. Create new supports for sagging attitudes. Create effective motivation for lazy supervision. And above all, create an umbrella of safety awareness to cover all management and labor at your location.

When you create, strike out boldly. Don't be inhibited, and don't offer passively what previously has been acceptable. Don't support the same old programs and efforts. Don't accept the old standards. You can contribute something new. You can push up those standards.

Let's take an example of motivating lazy supervision. You know how dull a poorly prepared and conducted safety meeting can be. You know how it embitters every employee who has to sit through it. Did you ever think of providing a means by which the union could effectively criticize every safety meeting in your plant?

At Springfield we created a feedback mechanism, whereby every union steward submitted a checkoff report on each safety meeting, answering such questions as:

. . . Was the leader well prepared?
. . . Did he deliver his message effectively?
. . . Was the subject to the point?
. . . Was the meeting worth while?

These reports came back through union channels to the senior union member of our steering committee. Here was a report for all to hear. Here was an effective motivation for supervision to do its job in a manner above reproach. At first, we caught some harsh criticism, and we deserved it. From the needs discovered by this newly created communication, we developed an instruction course in safety meeting leadership. Now we get but few tomatoes thrown at us.

Endurance must be a trademark of all safety personnel. As those around you may waver or weaken, you must remain steadfast. If your quest for higher safety standards meets resistance, you cannot relax. This is when your creativity, parlayed with your endurance, keeps you in the race.

To express endurance in the face of adversity, I turn to the Epistle of James, I:2-4 (J. B. Phillips' translation):

When all kinds of trials and temptations crowd into your lives, do not resent them as intruders, but welcome them as friends. Realize that they come to test your faith, and to produce in you the quality of endurance, then let the process go on until

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4,000 DOWN 91,000 TO GO

THE 1958 RECORD:

- **Total deaths—91,000—down 4,300 from 1957**
- **Death rate: 52.5 per 100,000 population—lowest on record**
- **Reductions in all classes of accidental deaths**

Accidental death rate for 1958 lowest on record; all classes of fatalities show decline from 1957

THE TREND of accidental death was down sharply in 1958. The death total was approximately 91,000—a reduction of 4,300 from 1957.

The death rate in 1958 per 100,000 population was 52.5—the lowest rate on record. Next lowest rates are 55.9 for 1954 and 56.0 for 1957.

The trend from 1957 to 1958 was generally down: Deaths from work and public non-motor-vehicle accidents decreased 6 per cent; home and motor-vehicle deaths went down 4 per cent.

Disabling injuries numbered about 9,100,000, including 340,000 which resulted in some degree of permanent impairment—ranging from partial loss of use of a finger to blindness or complete crippling.

Totals for the principal classes of accidents were:

Motor vehicle—1,350,000.

Pub. non-motor-vehicle—2,050,000.

Home—4,000,000.

Work—1,800,000.

Duplications of motor-vehicle with other classes numbered about 100,000. Death totals are given in an accompanying table.

Accident costs amounted to about $12,100,000,000. This includes:

Wage loss—$3,700,000,000.

Medical expense—$950,000,000.

Overhead costs of insurance—$2,550,000,000.

Property damage in motor-vehicle accidents—$1,900,000,000.

Property loss fires—$1,056,000,000.

Indirect costs of work accidents—$1,950,000,000.

Accident vs. disease. Present indications are that in 1958, as in earlier years, accidents were the fourth most important cause of death, exceeded only by heart disease, cancer, and vascular lesions of the central nervous system.

Accidents were the leading cause of death among persons 1 to 36 years old (according to the latest detailed information, 1957). Among males alone accidents ranked first from age 1 to age 36.

Accident types that were most important in 1958 were motor-vehicle accidents and falls with 41 per cent and 20 per cent, respectively, of the death total. Fire burns and injuries associated with conflagrations caused 7 per cent of the deaths, drownings another 7 per cent.

In 1908 to 1912, the five years preceding the formation of the National Safety Council, the average accidental death rate was 83 per 100,000 population. This was divided roughly into rates of 2 for motor-vehicle accidents and 81 for non-motor-vehicle accidents. By 1958 the non-motor-vehicle accident rate had dropped from 81 to 31. This record of successful accident prevention work was partly concealed by the increase in the motor-vehicle death rate from 2 to 21, resulting from the great increase in the use of motor vehicles.

Death totals by age groups in 1958, and changes from 1957, based on the Seventh Revision of the International Statistical Classification of Causes of Death, follow:

Age	*1958*	*1957*	*Change*
0 to 4	8,900	8,423	+6%
5 to 14	6,500	6,454	+1%
15 to 24	12,700	12,973	—2%
25 to 44	19,500	20,949	—7%
45 to 64	18,100	19,495	—7%
65 and over	25,300	27,013	—6%

By J. L. RECHT

Senior Statistician, Statistics Division, National Safety Council. This summary of the accident experience of 1958 is based on *Accident Facts—1959 Edition*, the Council's annual compilation of essential information about accidents.

Since the ten years 1903 to 1912 the greatest progress in accident prevention has been made among children under 15 years of age. The 15 to 24 and the 65 years and over age groups have shown the least improvement.

The latest detailed information available (1957) showed motor-vehicle deaths as 21 per cent of the 0 to 4 years accidental death total and mechanical suffocation deaths as 16 per cent. In the 5 to 14 year group, motor-vehicle deaths were 40 per cent of the total and drownings 22 per cent.

For persons 15 to 24 years old motor-vehicle deaths were 67 per cent of the accidental death total and drownings were 11 per cent. Motor-vehicle accidents led in the next two age groups, with 54 per cent for 25 to 44 years, and 44 per cent for 45 to 64 years. Among persons 65 years and over fatal falls made up 57 per cent of all accidental deaths.

THE NATIONAL ACCIDENT FATALITY TOLL

	1958	1957	Change
ALL ACCIDENTS	91,000	95,307	—5%
Motor-vehicle	37,000	38,702	—4%
Public non-motor vehicle	16,500	17,500	—6%
Home	27,000	28,000	—4%
Work	13,300	14,200	—6%

NOTE: Motor-vehicle totals include some deaths also included in the work and home totals. This duplication amounted to about 3,200 in 1957 and 2,800 in 1958. The 1957 all-accident and motor-vehicle death totals are official figures of the National Office of Vital Statistics. All others are National Safety Council estimates.

The only disaster in 1958 resulting in 50 deaths or more was the Chicago school fire which claimed 93 lives. However, there were four catastrophes in which more than 45 people died.

Motor-Vehicle Accidents

There were approximately 37,000 deaths from motor-vehicle accidents in 1958, a 4 per cent decrease from 1957.

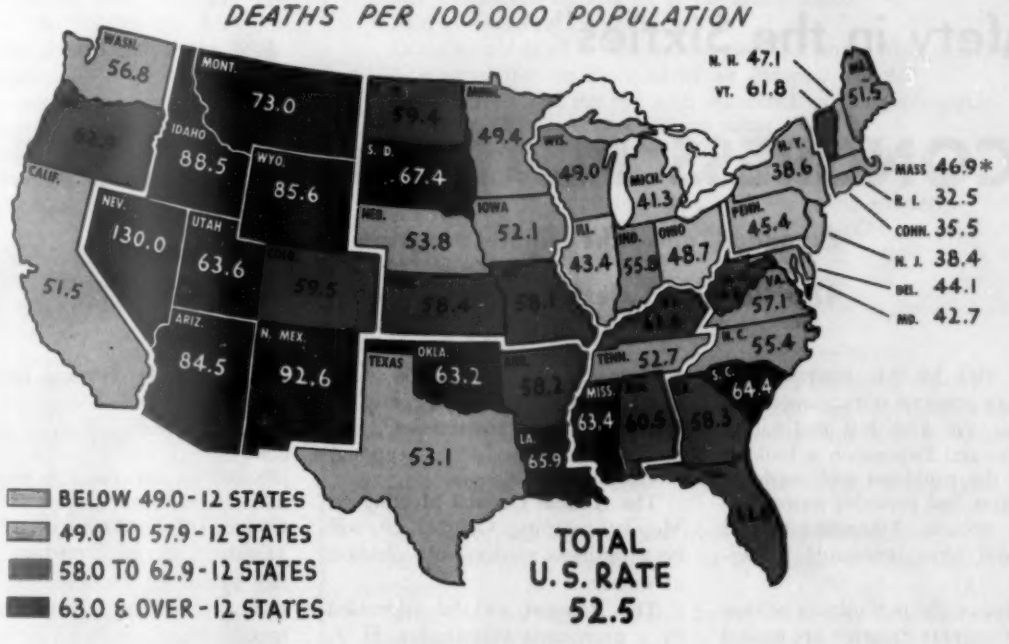
The vehicle mileage total rose in 1958 thus bringing the death rate per 100,000,000 vehicle miles to a new all-time low of 5.6.

Disabling injuries in 1958 numbered about 1,350,000. Costs, including wage loss, medical expense, overhead costs of insurance, and

—*To page 64*

ACCIDENTAL DEATH RATES BY STATES—1958

DEATHS PER 100,000 POPULATION



SOURCE: Reports from State Health Departments. *Partly estimated.

E. J. THOMAS, chairman of the board, Goodyear Tire & Rubber Company, will give the banquet address.

"Safety in the Sixties"

CONGRESS PLANS COMPLETE

Expanded, up-to-the-minute program prepared for 47th National Safety Congress, Chicago, October 19-23

WITH 100 MORE sessions and 200 more program participants than last year, the 47th National Safety Congress and Exposition is looking toward the problems and needs of an exciting and probably more dangerous decade. Management and labor will have increasing participation.

Copies of the preliminary edition of the *Congress Program* are mailed to members in advance of the Congress to permit planning attendance at the many sessions. As far as possible, the subject sessions sponsored by the American Society of Safety Engineers are scheduled for the mornings and the sectional meetings for afternoons.

The Annual Council Meeting on Monday morning, October 19, will be a business session with election of officers.

The Banquet will be addressed by a prominent industrialist, E. J. Thomas, chairman of the board of The Goodyear Tire & Rubber Company. This year the Banquet will be held Tuesday evening, instead of in the traditional Wednesday spot.

Labor Sessions. Labor's growing concern for safety on and off the job will be expressed in three significant sessions arranged by the Council's Labor Division to be held Tuesday, Wednesday, and Thursday mornings. Participating in the programs will be representatives of management, organized labor, state and federal government officials, the clergy, and educators.

"A Step Ahead of Tomorrow in

Safety" will be the subject of an address by Melvin H. Baker, chairman of the board of National Gypsum Company and for many years a trustee of the National Safety Council. The Reverend Francis L. Filas, S.J., professor of theology at Loyola University, will speak on "Life—One of God's Most Precious Gifts."

Browsing Through the Program

Meat Packing, Tanning and Leather Products Section members will hear a symposium called "Rx Your Plant." Dr. Tracy E. Barber, medical director, George A. Hormel & Co., Austin, Minn., will speak on a medical control plan. Care of injured and a health program will be commented on by Lucille M. DaMart, R.N., occupational health consultant, Loss Prevention Medical Department, Liberty Mutual Insurance Company, Chicago.

Air Products, Inc., and Linde Company will present a program, as part of a panel discussion on "Oxygen and Its Various Uses in the Metal Industry." Slated as a Metals Section session, this panel discussion will be led by J. W. Tysse, manager of safety, Republic Steel Corporation, Cleveland, Ohio.

E. L. Duggan, superintendent, Safety System, Santa Fe, will remark on the "Santa Fe Accident Prevention Plan" before the Railroad Section.

A symposium on jet and turboprop operations is planned for the Air Transport Section. Discussion leader is to be William A. Beirne, Jr., Alexander & Alexander, Inc., New York. Dr. K. L. Stratton, medical director, American Airlines, Flushing, N. Y., will talk about medical aspects. Peter Neelsen, superintendent, Ground Services, Pan-Atlantic Div., New York, is to comment on ground safety. And A. L. Cudworth, acoustical engineer, Liberty Mutual Research Center, Hopkinton, Mass., will speak on noise history, experience, and trends.

The Construction Section will hear two men discuss "Evaluation of Equipment." These men are: Earl W. Wheeler, safety engineer, Bureau of Yards & Docks, Department of the Navy, Washington, D. C.; and A. J. Rutherford, chief, Evaluation Engineering Branch, Engineering Research and Development Center, Fort Belvoir, Va.

"Maintenance of Explosionproof Motors" is the subject of comments by S. F. Henderson, manager, A. C. Development - Motor Engineering, Motor & Control Div., Westinghouse Electric Corp., Buffalo, N. Y. This will be a part of the Electrical Equipment Section session.

Emerson M. Jones, Jr., technical service supervisor, Nitrogen Div., Allied Chemical Corp., New York City, will speak on "Avoiding Potential Hazards in the Use of Nitrogen Solutions" before the Fertilizer Section.

"Bad Backs and What to Do About Them" . . . Dr. H. Kelikian, associate professor of orthopedic surgery, Northwestern University, will comment on this topic at an Occupational Health Nursing Section.

As a segment of the Petroleum Section program, Dr. J. H. Hege, medical director of The Ohio Oil Company, is to remark on "Emotional Health and Accident Prevention."

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Father Filas

That Old Gang of Mine

NOT A SOUL down on the corner, so I strolled around the neighborhood looking for a little excitement.

Joe had a 110-volt chill from working on his washer.

Gil got hit between the eyes with a board while building a tool shed.

Art was kicked by a horse at the riding stable.

Sam cut his foot chopping wood.

Doug stumbled off a curb and sprained his ankle while ogling a cutie.

Lou was bitten on the nose by his Pekinese pooch.

Sal poked Jim in the eye with a cuestick at the poolroom.

Frank was slashed by a jealous suitor.

Dave sprained his back wrestling with the spouse.

George was clawed by a frustrated tomcat.

Seth unhooked a couple of toes with his power mower.

Ed's kid swallowed half a bottle of sleeping pills.

Nell fell in the tub and fractured her hip.

Mazie slipped a disc wriggling into her girdle.

Jake lost his upper plate down the commode.

Abe had a bad case of tired blood.

John's girl friend clobbered him with a beer bottle.

Joe was tossed out of a joint on his face, fracturing his jaw.

Al went swimming after dinner and sank right to the bottom.

Amy was burnt when she fell asleep on the couch with a cigarette in her hand.

Elsie took too many "happy" pills and slugged a cop who got in her way.

Sam drove into a parked car while lighting his cigarette.

Moe's girl got a creased skull as she played William Tell with her brother.

Artie's big toe was punctured by the spike heel of a doll doing the Hopping Cha Cha.

Guess I shoulda stood in bed. The old gang's getting duller by the year.

ROBERT D. GIDEL

YEAR AFTER YEAR, general sessions of the Milwaukee Foremen's Safety School pack the huge Auditorium. RIGHT: Planning the school schedule is a shirt-sleeve job. The three top motivators of the 1959 class are (left to right): James G. Dickinson, Wisconsin Electric Power Co., immediate past chairman of the school; Clarence J. (Jack) Muth, manager of the Safety Division of the Association of Commerce, and E. Clark Woodward, A. O. Smith Corp., chairman of the 1959 school.

Training Milwaukee's Safety Leaders

For 39 years this unique school has provided basic safety training for key men of the area's industries

LEADERS of commerce and industry in a major American city organize their forces to combat a common foe—accidental injury and death—and more than a million people have a better chance to live. That's the story of Milwaukee—city of beers and home of the Braves.

By NORVAL BURCH
Editor, *Industrial Supervisor,* National Safety Council.

Among the more than a million citizens (metropolitan area), the *better chance* paid off again last year with life for 55 Milwaukeeans. That's the number saved from death in occupational accidents in 1958 just because Milwaukee's occupational death rate is less than half that of the nation as a whole.

Life is pleasant in Milwaukee, generally speaking, but it must be especially pleasant for another 7,000 persons (unidentified), who would have been crippled by accidents last year if the city's industrial injury rate had matched that of the nation.

Many factors account for the high degree of safety consciousness in Milwaukee, but one of the most significant, undoubtedly, is efficient organization and careful execution

THE OVERTURE. The Milwaukee Police Band provides some rousing musical numbers before the opening of the general session.

of a specific program for industry—the Foremen's Safety School of the Milwaukee Association of Commerce, which has just completed its 39th annual session.

Every year, come spring, attendance figures pass the 10,000 mark, when key employees from about 300 firms voluntarily take part in the school's three-part series of intensive safety lectures, covering every type of industrial activity. On each of three nights, eight specialized lectures are followed by an inspirational address by a nationally-known figure.

Streaming in to the main assembly hall from separate meeting rooms at mid-evening, the "students" hear a brief band concert and listen intently to the safety message of the featured speaker. The warmth of their response is regarded as an indication of the enthusiasm with which they take new safety ideas back to shop and factory—as well as to home and highway.

The Milwaukee economy also has a better chance—a direct product of the city's combined safety efforts—because the lower accident rate saves 12 million dollars each year in reduced workmen's compensation costs, medical expense and production losses.

NSC Birthplace. Milwaukee is proud of many things—her famous malt beverages, her pennant-winning Braves and of her bustling industries, whose diversified products contribute to the better life in every corner of the world. But her citizens are especially proud of her special niche in history—as the birthplace of the organized safety movement in America—for it was here, at an industrial conference in 1912, that the National Safety Council was brought into being.

Perhaps that heritage has influenced the unusual atmosphere of safety awareness that seems to pervade Milwaukee and her people. Whatever the motivating spark, Milwaukee leaders have implemented it with a carefully organized, well-coordinated attack on every front.

The foremen's school, a Fire Prevention and Plant Protection school each fall, and a continuing year-round safety educational program that reaches into every industrial area, as well as into homes and playgrounds, are projects of the association's industrial safety division, managed for nearly 30 years by Clarence J. (Jack) Muth.

For an even longer period, Dr. B. L. Corbett has directed the Milwaukee Traffic Safety Commission, a municipal body, with comparable success.

Without wasteful overlapping, these separate programs are so well coordinated that the safety attitudes engendered by one complement the efforts of the other. Both programs have received world-wide recognition, and Muth and Corbett have received so many National Safety Council awards they've lost count.

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CLASSES for the various industrial groups are followed by a general session in the main hall.

REGISTERING for the Milwaukee Foremen's Safety School. The classes are coeducational.

HOOD DESIGN is important in confining the contaminant and exhausting it through ductwork. This photo of a hooded operation shows the air flow pattern around a papergram sheet. (Courtesy The Upjohn Company)

Laboratory Ventilation

Increasing use of toxic and radioactive materials demands efficient systems for removal of all air contaminants

IN OUR LABORATORIES chemists work with materials of varying degrees of toxicity and with our growing family of radioactive isotopes. Especially in the laboratory, the safety engineer must have a working knowledge and appreciation of fundamentals of ventilation.

Much has been written about the hazardous properties of materials handled routinely in laboratory work. Our concern is to provide a healthy and safe laboratory, so it is essential to examine the fundamentals of ventilation.

Hood design. Good ventilation will confine the contaminant and exhaust it to the outdoors through suitable ductwork, passing the material through a collector or scrubber before release to the neighborhood.

Consider a basic laboratory hood reduced to bare fundamentals—a simple box. After confinement in the box, the material may escape in any of three ways:

1. Agitation from chemical or mechanical action may disperse the contaminant through the open doorway of the hood.

2. There may be thermal action from the chemical reaction or from the use of heating equipment to aid the reaction.

3. Cross currents of air may be sufficient to siphon air and contaminant out of the hood.

To overcome this tendency to escape, it is necessary to exhaust the air to create an indraft through the face of the hood. Ventilation

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By JAMES C. BARRETT

Michigan State Department of Health, Lansing, Mich. Condensed from a paper presented at the Laboratory and Pilot Plant Session, 46th National Safety Congress.

control cannot be achieved without adequate air flow.

Capture velocity has been a controversial subject in recent years, but it is not as confusing as it may seem. Since we must confine the material in the hood, there must be a certain minimum velocity through the door. Certain velocities for laboratory bench-type hoods are recommended by the American Conference of Governmental Industrial Hygienists.

For chemical and moderate toxicity material, average face velocity should be a minimum of 100 fpm. through the open door area, with an 80 fpm. minimum at any point.

For high toxicity and radioactive material this should be raised to an average of 125 to 200 fpm., with an absolute minimum of 100 fpm.

Some authorities claim certain laboratories (as in schools and universities) do not use high-toxicity materials regularly, and individual exposure may not be for a full working day. However, we have no guarantee that a material used in a hood on any given day or for a particular project may not be succeeded by a material of high hazard —flammable or toxic.

We know also that with many materials the problem is not merely one of exposure for long periods; serious illness or death can occur from even one short exposure. With such materials as the oxides of nitrogen, a single exposure may often be sufficient to kill an individual or impair his health seriously.

We cannot settle for anything less than adequate ventilation control, and adequate face velocities must be used.

There are times when it may be practical to use lower velocities at the hood. Many chemical reactions progress for long periods, with the greatest danger coming when equipment is set up and before it is completely sealed. After setup by the chemist, the apparatus may be left without direct supervision. Under these conditions, with favorable location of the hood in the room, it is possible to reduce face velocities, since there are no operating personnel to disturb conditions at the face of the hood.

Many companies have found that two-speed fan control is entirely satisfactory in these cases. For low-volume operations, face velocities of 75 to 80 fpm. have been used successfully. Usually, when the exhaust volume is reduced, the doors of the hood are partially or completely closed as an additional safeguard.

It must be emphasized that this can be accomplished only under ideal conditions with a minimum of disturbance at the face of the hood and with a minimum of agitation or chemical reaction in the hood. Either of these conditions will require higher velocity to maintain ventilation control.

The glove box hood is another common type of laboratory hood used for work with radioisotopes, with tuberculosis germs, and in many standard chemical laboratories. Here the chemist is entirely outside the hood, and his only contact with the interior is through the glove ports.

This hood has been called a laboratory in itself, since it is usually equipped with water, gas, vacuum, lights, and with any other needed facilities. In some instances the hood is maintained with an atmosphere of inert gases for special purposes. When using radioisotopes or neutral atmospheres in the hood, it is necessary to provide airlocks, so apparatus or materials may enter and leave the hood without exposing the room to the hood contents.

Exhaust volumes for this hood are based on maintaining 50 fpm. in velocity draft at any opening; usually this means an exhaust of 20 to 30 cfm. of air for each glove box. In many designs filters are used in the exterior of the box to provide for clean entering air. If such filters are used, they should be located at the back or sides of the glove box so as not to expose the chemist in a puff-back or explosion of materials in the hood.

For radioactive materials where it is important to keep the ductwork clean, prefilters can be mounted at the duct inlet with provision for a cleanup or absolute filter in the exhaust branch. In other designs the prefilter is incorporated in the same enclosure with the absolute filter, so when these become loaded too heavily, they may be discarded as a unit, requiring less handling of contaminated filter material.

Hood location. Location of the

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the LIGHTER SIDE

BEFORE AND AFTER. Older welding booths (left) were poorly lighted and ventilated. New installations have ample light and efficient fume removal.

Tonic for a Tired Plant

℞ An ambitious clean-up, paint-up project brightened the workplace, removed hazards and gave the whole organization a lift

THE PLANT was 17 years old and looked it. Years of continuous production had left walls, machines and floors gray and grimy.

Actually, Universal Form Clamp Company's plant on Chicago's near northwest side just looked like a factory was supposed to look only a few years ago. But it didn't look good to J. I. McClelland, vice-president and general manager, when he took charge early in 1958.

In World War II McClelland got thoroughly indoctrinated with the Navy's ways of keeping things shipshape. Then for several years he was associated with a company that had an active safety and housekeeping program. So the Universal plant was a challenge and an opportunity.

With Mrs. Elsa Mayers, president of the company, he surveyed the plant and visualized its possibilities.

The company, manufacturing concrete forms and accessories since 1912, moved into its present building in 1943. Here, 63,266 sq. ft. of floor space are devoted to manufacturing operations, with part of this space used for offices.

Manufacturing processes use a

← **STEAM CLEANING** with portable generator prepares truck for refinishing.

EXTINGUISHER can be spotted quickly on red post with arrow pointing to it. →

STAND-CLEAR warning is flashed by yellow and black stripes on the traveling beam of this overhead hoist.

wide variety of metal-working and forming machines, including 100-ton presses, multi-purpose presses, wire straighteners, automatic welders, slab bolster machines, snap tie machines, saws, turret lathes, threading machines and panel-cleaning machines. Current employment is around 250.

A railroad siding, railroad and truck loading docks and an employee parking lot occupy another 117,033 sq. ft.

Although in need of a thorough housecleaning, the plant had its good points. It had been redesigned for manufacture of the company's specialized products. Flow of materials from receiving areas to shipping docks is better than average. Materials and finished products are moved by hand trucks, lift trucks and an overhead hoist which runs on rails the entire length of one bay. Efficient layout undoubtedly made the subsequent renovation of the plant much easier.

Ever since war days the plant had been busy keeping up with orders. Many refinements of housekeeping had been postponed. From time to time, machines had received the usual wipe-off cleaning and an occasional scrubbing, but accumulated grime of many years made equipment look twice its age. The prevailing color—if you call it color—was a greasy gray.

Renovation was to be done, if possible, without interruption to production schedules. The idea developed into a project of many months, with everybody in the plant participating. Results were far beyond anybody's dreams.

The plant, McClelland and Mrs. Mayers decided, needed more color for safety and efficiency as well as for decoration. That meant using it with a purpose according to accepted standards.

Before paint could be applied successfully, a vast amount of surface preparation was necessary. High-pressure steam cleaning was needed for effective cleaning. Since a complete shutdown was not practicable, machines were scheduled individually for painting and cleaning.

High-pressure high-temperature steam with a detergent in solution, combined with partial disassembling of machines and brushing, soon removed grease and grime. In using

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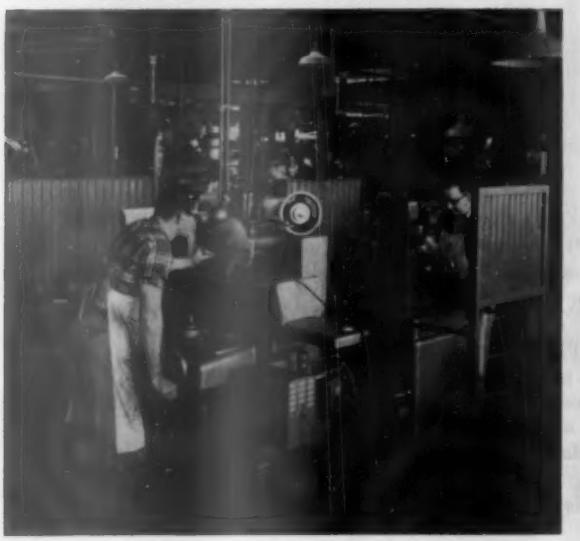
MACHINES in "gold standard" tool room are finished in gold and black lacquer. Plastic screens stop flying chips and sparks at grinders.



ENDS of rails projecting from storage racks, painted yellow, warn passing traffic. Angle of turns can be judged from yellow and black stripes.

STUDIO GUESTS are the broadcasting company's responsibility. And perhaps the psychological climate of lavish give-away programs is conducive to injury claims.

Hazards Behind The Glamor

Here's a side of TV the public doesn't see—the complicated job of preventing accidents in the studio

MY FELLOW safety engineers sometimes accuse me of having a glamor job—but not the insurance people. I'm safety manager for the National Broadcasting Company.

Our problem is keeping dramatic values at a competitive level without killing or maiming the cast, the audience or the contestants. It isn't always easy, and we were somewhat dazed when we won the National Safety Council's top award—The Award of Honor.

Our frequency rate of disabling injuries per million man-hours work dropped from 5.31 in 1956 to 1.77 in 1957 and 1.59 in 1958. And in 1959 to date we are ahead of 1958. The figures for New York, our headquarters and largest single location, for these same years are 4.72, 1.66, and .71 respectively.

New York won the Award of Honor in 1958 for 3,919,674 man-hours without a disabling injury. San Francisco, Philadelphia, and Washington, each smaller than New York, won the Award of Merit in 1957. Burbank and Philadelphia met Award of Merit standards in 1958.

Unusual problems? We have them!

For example, our stagehands are called in from the union on the basis of need and are placed on the weekly rather than staff payroll without physical examination or application form.

There is no compulsory retirement age, and the work involves lifting, bending, use of hand and power tools, climbing high ladders, and electrical hazards.

Next to the stagehand problem, we have creative temperament to deal with. Many of our producers and directors are not NBC employees but work for the agency or packager owning the specific show.

We try to draw the line on substi-

By MILTON E. WILLIAMS

Safety Manager, National Broadcasting Company, New York.

PUTTING ON a show involves lifting, climbing, bending, use of power and hand tools by technicians and stage hands. This scene is from the Kraft Theatre.

tuting lighter fluid for brandy, city ladies wrapping live cows, wax candles dripping on guests, or realistic hangings on the air. And we like to take adequate precautions when elephants, ocelots, lions, or "tame" bears are part of the proceedings. If you watch our programs, you know it isn't easy.

We're different in our public liability problems.

All guests in our studios and theaters are given free tickets. We can't control their ages, their spike heels, or their myopic vision, but when they crash, they're our responsibility and it costs us money.

When a guest has just witnessed a lucky contestant win a Jersey sea skiff, a mink coat, a diamond necklace, and a free trip around the moon, the psychological climate dictates that the broken heel is awfully valuable, and the ankle will never feel the same. Our nuisance settlements are overwhelming.

As our manager of guest relations puts it, "The public considers us in the same category as the public library." And, I might add, "Fort Knox."

How do we meet these problems?

First essential in a safety program is top management's backing. We were fortunate in having this activity started by the executive vice-president. In a memo to all vice-presidents, station managers, division heads, and department heads, he endorsed accident prevention as a "worthy humanitarian effort and at the same time an economically sound activity which will improve the over-all performance of the company."

In the same memo he appointed a safety advisory group, comprising executives of operating departments, to meet monthly to analyze accident experience and make recommendations for the correction of unsafe conditions and actions.

Second, a basic course in fundamentals of accident prevention was presented to those in operational positions systemwide, using color film slides of wrong methods or unsafe conditions on the job.

After such training, check list-

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SAFETY HONORS for National Broadcasting Company. Left to right: Dave Garroway, M.C. of the "Today" show; Howard Pyle, president, NSC; and B. Lowell Jacobsen, vice-president, NBC, holding the Council's Award of Honor plaque.

JUNGLE SCENE in the studio. Here stage hands are adjusting props on "Swiss Family Robinson" show. Careless work could result in injuries to the cast.

Ryan's safety meetings are no-holds-barred affairs. Such industrial democracy puts a dent in accidents, as . . .

The Work Force Speaks Up

"TOWN-HALL MEETING" safety get-togethers are keeping accidents down, morale and efficiency up at Ryan Aeronautical Company, San Diego, Calif.

A series of safety meetings is held by departments throughout the plant monthly after the first rest periods of each shift. In these gatherings supervisory personnel exchange viewpoints with hourly-paid employees.

A vigorous interplay of comment and suggestion includes discussion of accidents, their causes and means of prevention; conditions involving potential hazards; standards to be maintained for good housekeeping; and suggested improvements in general working practices.

One typical session took place in Dept. 130, machine shop, in the plant's outdoor bandstand area. James F. Butler, foreman, presided.

"We had 43 injuries, mostly hands and fingers, last month," he said, beginning the meeting. "We had no eye injuries—the ones we worry about the most.

"We're still getting complaints about contamination of chip barrels. Good housekeeping is something everyone has to be reminded of from time to time. This is a big safety factor. If a department isn't clean, it isn't safe.

"We should watch indiscriminate use of air hoses for blowing chips off machines. Chips might strike eyes, or get into gearboxes. Use brushes or other means of cleaning out chips."

Responses to Butler's initial comments came fast and thick (see next page). Such cooperative enthusiasm is one keystone in Ryan's constant improvement of the firm's excellent safety record.

LEFT: Carl Harris, duplicating profiling machinist, said, "The problem might be solved by reducing air pressure."

LEFT: Henry Todd, radial drill press operator, said, "An uncomfortable mist comes from the cleaning solvent used to spray on equipment prior to repainting."

RIGHT: Leo Sayles, foreman, said, "I checked with the safety people, and they assure me that cleaning solvent mist is not detrimental to health."

LEFT: Roberta Creley, drill press operator, commented, "The spray may not hurt us, but it gives us a headache. And it doesn't help us."

BELOW: Robert L. Spears, milling machine machinist, asserted, "I doubt if any chips are actually blown into the gearbox by air hoses."

BELOW: Rose Giamanco, machine parts finisher, asked, "Could we figure out a better method of suspending air hoses so they don't get in the way?"

IDEAS THAT WORKED

Devices and Ideas to Help Your Safety Program

By Arthur S. Kelly, Industrial Department, NSC

Cleaning chests and dust collectors

A MINER'S hat (with dry cell battery light) was utilized to clean out chests on paper machines. It proved to be practical because it eliminated the use of extension cords and left the operator's hands free at all times.

Later the same idea was used successfully for cleaning out dust collectors.

This idea was developed at the Menasha, Wisconsin, plant of Marathon, a division of the American Can Company, and was submitted by R. H. Muller, assistant to industrial relations administrator.

WINNER IN AUGUST

PRIZE-WINNING idea in the August issue was "Burns Safety Tangles," submitted by J. F. Biehl, secretary-treasurer, Jabez Burns and Sons, Inc., New York. This idea was for a contest that resembled Tangle Towns. There were 10 puzzles, and each week a new one was mailed to each employee.

Take a chance—and stay safe

ON FIRST consideration, this idea may seem a bit premature. Nevertheless there is nothing like being prepared. It is based on the somewhat infamous football cards which have caused considerable ruckus around the country the past few years.

Check The Teams You Think Will Win And Return To Your Foreman

☐ Tennessee	vs	Auburn ☐
☐ Syracuse	vs	Boston College ☐
☐ Ga. Tech.	vs	Florida State ☐
☐ Mississippi	vs	Kentucky ☐
☐ Vanderbilt	vs	Georgia ☐
☐ Colgate	vs	Cornell ☐
☐ Holy Cross	vs	Pittsburgh ☐
☐ Illinois	vs	U. C. L. A. ☐

"Gamble If you will - But don't gamble with Safety"

Signed _____

Department _____

We are very happy to see it put to a good use. A plant is divided into Saf-T-Cast groups with the same number of employees in each group and as nearly as possible comparable accident exposure.

Each member of every group is given a football prediction card every week for nine weeks. However, if a member of a group has an injury requiring the services of a physician, his group does not get a card for that particular week. First aid cases are not counted, to prevent anyone's delaying or avoiding getting a minor injury treated.

Each prediction sheet contains eight games as well as a safety slogan. Each qualified employee who guesses six out of eight winners on his prediction sheet has his name placed in a box. A drawing is held at the end of the contest. In the plant where the idea started, it was the Monday before Thanksgiving. Turkeys were given to the winners.

Mr. Carl H. Jerden, safety representative, United States Fidelity and Guaranty Company, Knoxville, Tennessee, submitted this idea. He reported that in the companies using this contest, employee participation was almost 100 per cent and accidents definitely showed a downward trend. Mr. Jerden also points out that the same kind of contest can be adapted to the basketball season or other sporting events.

Attention-getting decals

WE DO NOT think it would be possible to describe this idea better than it was described in the letter in which it was submitted. The letter stated, "I am sure you will agree with me that the function of maintaining personnel interest in safety calls for ingenuity and the ability to produce something new.

"Since the experience of this directorate revealed that a considerable percentage of all injuries was caused within the control of the personnel themselves, I locally manufactured the attached decals —to warn, educate, and impress upon workers the importance of thinking and acting safely.

"Evidenced by the number of requests and the various methods employed for displaying these decals, there is no doubt in my mind that these permanent, attention-getting, inexpensive Safety Sammy decals have been accepted by the workers."

This idea was submitted by Leon Stark, director of ground safety, Headquarters 14th Air Force, Robbins Air Force Base, Ga.

THE SAFETY LIBRARY

Reviews of books, pamphlets and periodical articles of interest to safety men

By LOIS ZEARING, Librarian, NSC

Safety in Petroleum Refining

Safety in Petroleum Refining and Related Industries. By George Armistead, Jr. John G. Simmonds & Co., Inc., New York. 469 pp. $12.50.

This revised text contains 12 chapters, covering such topics as fundamentals of safety, plant layout, and safe operating procedures as applied to refinery operations.

The book contains information on maintenance practices affecting safety, inspection techniques, and the applications of inspection methods to process units.

The text can be useful as a reference for fire protection engineers engaged in refinery operations, for inspection and maintenance men, and safety men.

Containing tables and charts for handy reference, the book is illustrated with drawings and photographs of operating equipment.

Amateur Rocketry

The Rocket Handbook for Amateurs. Edited by Lt. Col. Charles M. Parkin, Jr. The John Day Company, New York. 306 pp. $5.95.

Two of the 12 chapters were written by Col. Parkin. These are "How to Build, Test, and Launch a Model Rocket," and "Safety Rules for Rocket Amateurs."

The fact that Col. Parkin finds it necessary to list 40 safety rules makes me wonder whether it is wise to put propellant and firing information into the hands of amateurs.

Before he tells the young reader how to mix his own propellant, he warns, "If you decide to experiment with such materials, be sure you have competent supervision, and work safely. An accident may blind you or otherwise maim you for the rest of your life."

I don't believe teen-agers should be mixing propellants or firing. There is enough challenge in design to keep the most energetic youngster busy. Professional rocket men do not design, mix fuel, and fire. They specialize. Propellant is tricky stuff to handle, even for professionals.

The book is short. The entire field of exterior ballistics has been neglected. There is no information on how to calculate stability of a rocket and extremely sketchy information on how to calculate its trajectory.

Scattered through the book are instructions on designing a rocket motor for strength characteristics, but the fact that it is spread out and incomplete detracts from its value. This subject is important enough to justify a separate section on stress analysis.

In some portions of the book, there is excellent coverage of thermodynamics—that is, the application of thermodynamics to cryogenics and jet turbines.

The book is concerned primarily with motors, both liquid and solid propellant types. The chapter on instrumentation for static tests is well done. All the measurables, carefully broken down into subtopics, are listed.

Thrust is broken down into nose thrust, specific thrust, and exhaust thrust loading. Pressure is subdivided into atmospheric, fire chamber, exhaust overpressure, and tank.

The vacuum trajectory is treated briefly, but this theoretical concept is not enough. The reader needs the more sophisticated technique of calculating trajectory with air drag, since he will be firing in air, not vacuum. The formulas are given but not developed. There is no physics.

In the section on solid propellant rockets there are directions for "making your own." The reader is advised to heat sugar to 350F *in a double boiler.* I haven't seen this tried, but I would like to see it done sometime. I can't understand how to get above 212F.

The book's multiple authorship has resulted in some repetition which could have been avoided by careful editing. Chapter VII on "Design Elements" repeats some of the material from Chapter V on "Solid Propellant Rockets," and the same information is given again in the final chapter on "How to Build, Test, and Launch a Model Rocket."

The section on solid propellant rockets is well written and informative. The portion on thrust chamber design is a skillfully done job. The book actually fills a big void in the literature on rocketry, especially in its detailed treatment of fuels.

I believe, however, that if the book had been as well organized, clear, and selective as Ft. Sill's *A Guide to Amateur Rocketry,* this handbook would be more valuable.

ROBERT F. GARTNER

The reviewer, Robert F. Gartner, is Research Engineer, Ballistics Section, Armour Research Foundation, Illinois Institute of Technology. He is Educational Director of the Chicago chapter of the American Rocket Society and sponsors the Park Forest, Ill., Rocket Society in the suburb where he lives. Mr. Gartner is the author of "Let's Help Our Teen-Age Rocketeers," which appeared in the August 1958 NSNEWS.

"I'll go broke buying batteries! Sometimes I wish I had put in good general lighting."

Poisoning—Diagnosis And Treatment

Poisoning, a Guide to Clinical Diagnosis and Treatment, 2nd Edition. W. F. von Oettingen, M.D., Ph.D. W. B. Saunders Co., Philadelphia, 1958. 627 pp. $12.50.

This text was written to assist the physician in diagnosis and treatment of poisoning, keeping in mind

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A NATIONAL SAFETY COUNCIL TECHNICAL SERVICE

DATA SHEET 481

RADAR HAZARDS

Published by The National Safety Council
425 North Michigan Ave., Chicago 11, Ill.

1. Radar, an acronym made up of the initial letters of the compound term "radio detection and ranging," is that group of radio detecting instruments that operate on the principle of microwave radiation echoing in a range from several meters (m) to several millimeters (mm). The comparable frequencies are of the order of 100 megacycles (mc) to 100,000 megacycles per second.

2. Basically, the radar unit consists of a transmitter and receiver, usually operating through a common antenna. A pulse of energy is emitted by the transmitter to be picked up as an echo signal by the receiver. The signal thus received is converted by a display or sounding device into usable information.

3. The average power output range of radar units may vary from a fraction of a watt to hundreds of kilowatts, and is being extended toward the megawatt region. Peak pulse powers vary from a few watts to megawatts.

4. Radar systems are most frequently used for the purpose of detecting storms, aircraft, missiles, ships, ground vehicles, or other moving objects, or fixed objects such as elevations of terrain. These systems may be installed on ships, aircraft, and vehicles, or at fixed land stations.

Hazards

5. The health, electrical, and fire hazards involved in the handling and use of radar sets include the following:

a. X radiation from high-voltage tubes.
b. Radioactivity from radioactive activators used in certain radar switching tubes.
c. Thermal effects of electromagnetic radiation on the body or parts of the body.
d. Toxicological hazards of gas fills as used in certain waveguides.
e. Electrical hazards connected with high-voltage equipment.
f. Fire hazards of flammable gases, fumes, vapors, explosives, and other highly combustible materials.
g. Materials handling hazards, particularly with respect to portable equipment and during installation and replacement, relocation, or removal of fixed equipment.

This Data Sheet is one of a series published by the National Safety Council, reflecting experience from many sources. Not every acceptable safety procedure in the field is necessarily included. This Data Sheet should not be confused with American Standard Safety codes, federal laws, insurance requirements, state laws, rules and regulations, or municipal ordinances.

X Radiation

6. During normal operation, vacuum or gas-filled tubes produce X rays. In tubes operating below approximately 10 kv, these X rays are normally effectively contained. When tubes operate with voltages in excess of 10 kv, stray X rays may be emitted. Harmful effects of unshielded exposure to X rays increase with increased voltages. Special precautionary and shielding measures should be taken when voltages approach or exceed 15 kv. Lead or other heavy material may be used to provide effective shielding.

7. Monitoring equipment shielded from the effects of radio frequency should be used periodically to check the level of X radiation emitted by all radar equipment operating with voltages in excess of 15 kv. Film badges or rings, pocket ion chambers, dosimeters, or shielded measuring instruments may be used.

8. The maximum level of radiation permitted should be in accordance with existing regulations or recommendations of such groups as the National Safety Council, the American Standards Association, the Atomic Energy Commission, or local or federal regulatory bodies.*

Radioactivity

9. Certain radar component tubes may contain small quantities of radioactive material as activators. If such a tube should be broken, workers must be careful not to ingest or inhale the material. Tubes containing material not absorbed by the body present little hazard, but tubes containing materials such as radon

*See NBS Handbook 59, *Permissible Dose from External Sources of Ionizing Radiation*, published by National Bureau of Standards.

FIGURE 1. Commercial marine radar antenna system designed to withstand high wind pressure.

gas and radium are highly hazardous. In general, however, the amount of radioactive material in these tubes is such that no significant external radiation hazard is present when the tubes are handled in small numbers.

10. Tubes containing radioactive material should not be stored in large quantity unless their level of radioactivity has been checked and has been found acceptable. Moreover, any large quantity of such tubes should be divided into smaller quantities and physically separated by sufficient distances to reduce exposure. Each such storage area should be monitored periodically and marked with approved radiation warning signs.

11. Breakage of tubes may create a serious inhalation or ingestion exposure. Special care, therefore, must be taken during handling. To prevent breakage, tubes should never be stored loose nor placed where they are likely to drop or be struck.

12. Personnel exposed to or required to handle quantities of tubes should be thoroughly instructed in the safe manner of handling radioactive sources. Rules governing the handling, use, and storage of tubes should be posted and strictly enforced.

13. The areas in which tubes are stored and handled should be checked with a suitable survey meter, and the levels of exposure found during every survey should be recorded. If the levels of exposure are significantly greater than background levels, personnel should be provided with film badges or dosimeters. Handling procedures should be devised to hold exposure to a minimum.

Body Heating

14. No body heating hazard should exist from any type of radar at any position except in front of the antenna. Such radar units as those used to measure traffic speed or to map weather present no significant hazard unless they are viewed from directly in front of the antenna, while the unit is operating, at a distance of a few feet. Larger units, such as search and warning types, however, may produce hazardous field strengths and should be checked before any person works in front of the antenna.

15. Normal operation of radar equipment does not expose personnel to hazards of microwave radiation except at the open end of wave guides, in energized antenna beams, and in line with reflected or deflected radio frequency energy.

16. Excessive temperature rise resulting from exposure to radio frequency energy can cause damage if the body absorbs more energy than it is capable of dissipating.

17. The amount of heating produced in the body depends primarily upon the field strength and duration of exposure, but is also affected by the frequency of the radar unit, the proportion of fat and muscle in the body, and the relation of the body to other objects. There is no reason to believe that any frequency is harmless when field strength is high. Conversely, there is no reason to believe that any frequency is harmful when field strength is low.

18. The depth of penetration of the radar energy is determined in part by the frequency of the energy. The lower frequencies produce more diffuse heating and are not as likely to produce localized high temperatures. Higher frequencies do not penetrate as deeply. Their energy is primarily dissipated in or just below the skin. Frequencies in the range of 3,000 megacycles can produce regions of high temperature

which may be maximum below the surface of the skin.

19. Parts of the body which lack heat-sensitive nerves, which are not adequately equipped to dissipate absorbed heat, or which have both these characteristics are most susceptible to damage from the thermal effects of radio frequency energy. Parts without heat-sensitive nerves are susceptible because the heat is not noticed and exposure times may be unduly long. Parts which cannot adequately dissipate absorbed heat may be adversely affected because the temperature will rise rapidly in them.

20. Parts of the body most likely to become damaged include the eyes, testes, gall bladder, gastrointestinal tract, and certain other vital organs. Metal plates, pins, and other metal implants in the body tend to concentrate the heating effects of radiated energy at the points of implant, thus subjecting these areas to greater tissue damage.

21. While it has not yet been established that such is the case, other harmful physical and chemical effects on tissue may also result from exposure to radio frequency energy.

22. The point of exposure of a person to radar energies is usually near the front of the antenna, within its beam, or at the open end of the waveguide. The waveguide structure itself is usually sufficiently enclosed to eliminate the hazard except at the open end, at leaky joints, or at such devices as slotted lines.

23. Personnel should not be exposed to direct or reflected radio frequency field intensities which exceed an average of 0.01 watt per square centimeter (0.01 w/cm^2). Present knowledge of radio frequency radiation indicates that the average limit of 0.01 w/cm^2 is satisfactory. Continued research on possible cumulative or delayed effects of absorbed RF radiation, however, may make it necessary to modify the maximum limit at some future time.

24. Radar workers should at no time look directly into a radar beam from a high-energy unit. (In this instance, any unit producing a field strength at the point of observation in excess of 0.01 w/cm^2 is considered a high-energy unit.) Moreover, they should view the interior of microwave tubes, wave guides, and similar equipment only through a remote viewing device such as a periscope or telescope, unless microwave operation has ceased. Before the viewing device is used on high-energy units, the eyepiece area should be checked with appropriate instruments to assure the user that radar energy is not being deflected or focused at the eyepiece.

25. Radar outputs from high-energy units not fed into an antenna should be absorbed by an enclosed load. If an enclosed load is not used, the output of the waveguide should be passed into the atmosphere in such a direction or at such a distance that it will not produce a field greater than 0.01 watt per square centimeter in the body of any person or animal in the vicinity.

26. Radar beams that must be discharged into a closed area should be absorbed by a microwave absorber, of which several commercial types are available. The reflected wave unit must be carefully measured so that if additional absorbers are required, they can be provided. If the intensity of the beam exceeds the stated limit, the entire area through which the beam passes must be roped off, posted, or both, to keep persons out.

27. Personnel who work in or around high-power radar antennas or radar test equipment should be adequately supervised and instructed to minimize the exposure received. They should keep at as great a distance from the beam as practical and should expose themselves to it as infrequently and briefly as their work permits.

Measuring Radar Output

28. The output of a radar set should be measured with a wave meter or radar power level meter, of which several commercial types are available. The device should be capable of measuring the total energy in all frequencies produced by the radar set.

FIGURE 2. Toroidal scanning antenna used for range and altitude studies.

FIGURE 3. Antenna and control system for high resolution airport surface detection radar. This unit scans the entire field once every second.

Waveguide Fills

29. Inert gases used in radar waveguides may become toxic if radar energy arcs through the gas.

30. Common fills such as sulfur-hexafluorine (SF) break down in the presence of an electric arc to form the elemental materials, in this instance, sulfur and fluorine. The fluorine component must be controlled since it is a highly toxic gas. Fluorine that is generated must be safely vented outdoors or passed through adequate absorbers.

31. Other fills used in waveguides should be checked for their action under an electric arc before they are considered safe for use by technicians who change the tubes and the fills.

Electrical Hazards*

32. All terminals on high-voltage electrical equipment operating in excess of 50 volts peak or 50 volts d. c. should be enclosed in a suitable cabinet or should be otherwise protected. Cabinet covers or doors should be provided with reliable interlock switches that will shut off the primary high-voltage circuits when the covers or doors are opened.

33. Grounding rods or devices should be provided and used to discharge high-voltage storage units before personnel make contact with the units. Equipment must be so grounded that no high electrical potentials can exist between the unit and ground. The ground connection should be through a wide copper strap or braid and should not be dependent upon the continuity of water-cooling pipes, if they are used.

34. High-voltage capacitors should, if possible, be provided with duplicate bleeder circuits to reduce the voltage to a nonhazardous level as rapidly as practical. Dual resistor banks are recommended. Then if one unit fails, the accumulated charge will be reduced by the other unit.

Ignition Hazard

35. Radar equipment can cause ignition of flammable materials by inductive heating of steel, other metals, or metal wools, or by sparks produced across a small gap between metal elements in an area in which an explosive fuel-air mixture is present.

36. Radar equipment will set off such items as photoflash bulbs, which in turn may ignite other substances at a considerable distance. Because of its filamentary structure, the flash bulb is more sensitive to radio frequency than are many other devices. Properly packed photoflash bulbs present no hazard, but defectively packed bulbs or loose bulbs left in or near material which has a low ignition temperature may ignite such material or other flammable substances.

37. Radar should not be operated on the ground except under carefully controlled conditions. Mobile or air-borne radar units should not be turned on within a reasonable distance from any fuel station at which aircraft or other equipment is being refueled or at which fuel is being transferred. The distance will be dependent upon the power output of the radar unit. For example, standard aircraft weather mapping units should not be turned on within 100 feet of fueling stations.

38. Air-borne radar units should be tested in an area in which the unit and the aircraft which carries it may be turned in a safe position.

39. Radar equipment should not be operated near electrically-detonated explosive setups. The energy

—*To page 54*

FIGURE 4. Waveguide used to carry radar waves from transmitter to antenna. Leakage of waves from this guide can result in serious hazard.

*These precautions apply to the electrical parts of the equipment only, that is, currents and voltages. They do not cover radio frequency radiations. For further information on handling of high-power electronic equipment, see National Safety Council Data Sheets 319—*Radio Frequency Heating,* 404—*Capacitors,* and 439—*Radio Transmitters.*

Photo taken at the plant of the Cone Automatic Machine Co., Windsor, Vt., where Goodyear safety soles are constantly wear-tested under the most rugged actual working conditions. *Inset right:* Andrew Garcia, one of the many machinists at the plant who enjoy extra safety by wearing shoes with Chemigum *Oil Proof* Soles.

SAFE... BECAUSE HE'S WEARING

CHEMIGUM OIL PROOF SOLES

Unexpected oil drippings, steel chips and other factory debris present no danger to the workman wearing Chemigum *Oil Proof* Soles. It's because Chemigum *Oil Proof* Soles provide far safer footing than average oil proof soles—thanks to their greater resistance to oil absorption and their non-skid "tread." In addition, these remarkable soles are superior in every other feature you want in a safety shoe sole. Chemigum *Oil Proof* Soles are non-marking, long-wearing and light in weight. More and more manufacturers of all types of safety shoes are replacing old-style soles with these remarkably safer Chemigum *Oil Proof* Soles. Insist on Chemigum *Oil Proof* Soles!

Mr. ***NEOLITE*** *says:*
"We're proud to bring you another pioneering product of GOODYEAR research."

CHEMIGUM HEELS are made of the same sensational oil proof material as Chemigum Soles.

MADE ONLY BY

GOODYEAR

NEOLITE AND CHEMIGUM OIL PROOF, T.M.'S—THE GOODYEAR TIRE & RUBBER COMPANY, AKRON, OHIO

Circle Item No. 11—Reader Service Card

(Fiction)

By BILL ANDREWS

From a compensation standpoint, loss of a finger on a left hand is a comparatively minor disability. But who could measure the loss to a southpaw pitcher?

THE SOUTHPAW

September 4, 1959

I'M NOT OFTEN in the medical office these days. My assistants do most of my running for me. I spend more time with superintendents than with doctors or workmen.

But today I was alone in my own office when Madge called from the project hospital, so I walked across the sun-baked parking lot to the white glare of the hospital building, into the antiseptic smell and air-conditioned chill of the corridor, toward the open door of the treatment room and the sound of sobbing.

Madge, in starched uniform and improbable cap, had a hand on a shoulder—a bent shoulder covered with sweat-drenched blue denim. The doctor—young Dr. Barr—was completing the bandaging of a hand.

Madge looked up at me, raised her left hand behind the patient's back, doubled over the index finger. "Now you just rest a bit," Doc was saying. "Lie flat and get your strength back. We'll have you home for supper and back to work in short order."

The patient was not more than 22, a lean, rawboned lad, pale and badly scared. "Doctor, please, tell me. Am I going to be crippled?"

"Nothing like that, Jack," the doctor said. "Your left hand is banged up a little. But you'll be able to use it pretty well as soon as the wound heals."

The patient said, "But, Doc, I pitch for the plant team."

Dr. Barr said, "Well, be grateful it's your left hand, then. By next season you'll be OK."

"Doc, you don't understand. I'm a southpaw, a left-hander. Am I gonna pitch again?"

There was silence in the treatment room, and Jack looked from the doctor to Madge to me. He read our faces right, and burst again into sobs.

Outside, a door banged, there was a clatter of high heels on the tile corridor, and a girl of about 18 ran into the room. "Oh, Jack, Jack, Jack," she wailed, rushing over to the treatment table.

He grabbed her hand in his right hand, and she bent over and kissed him. She pulled away and looked at the doctor. "Please, they said he was hurt. Is it bad? Will he be all right? I'm his wife. I've got to know."

"He'll be fine, Mrs. Caron," Madge said. "It's only his hand that's hurt."

"Thank God," the girl-wife said.

Jack almost wailed, "Honey, you don't understand. It's my hand, my pitching hand. I'll never pitch again!"

You could read in her face the flow of thoughts unspoken. They were, in sequence: *Who cares about pitching! My man's safe—He's like a child, worrying about his silly ball games—He's really forlorn, really needs me!*

And the drab girl in the cheap shoes and the cheap print dress was suddenly radiant with purpose. She stood beside her husband, pressing his right hand, speaking meaningless words of comfort that had healing power in their loving sound.

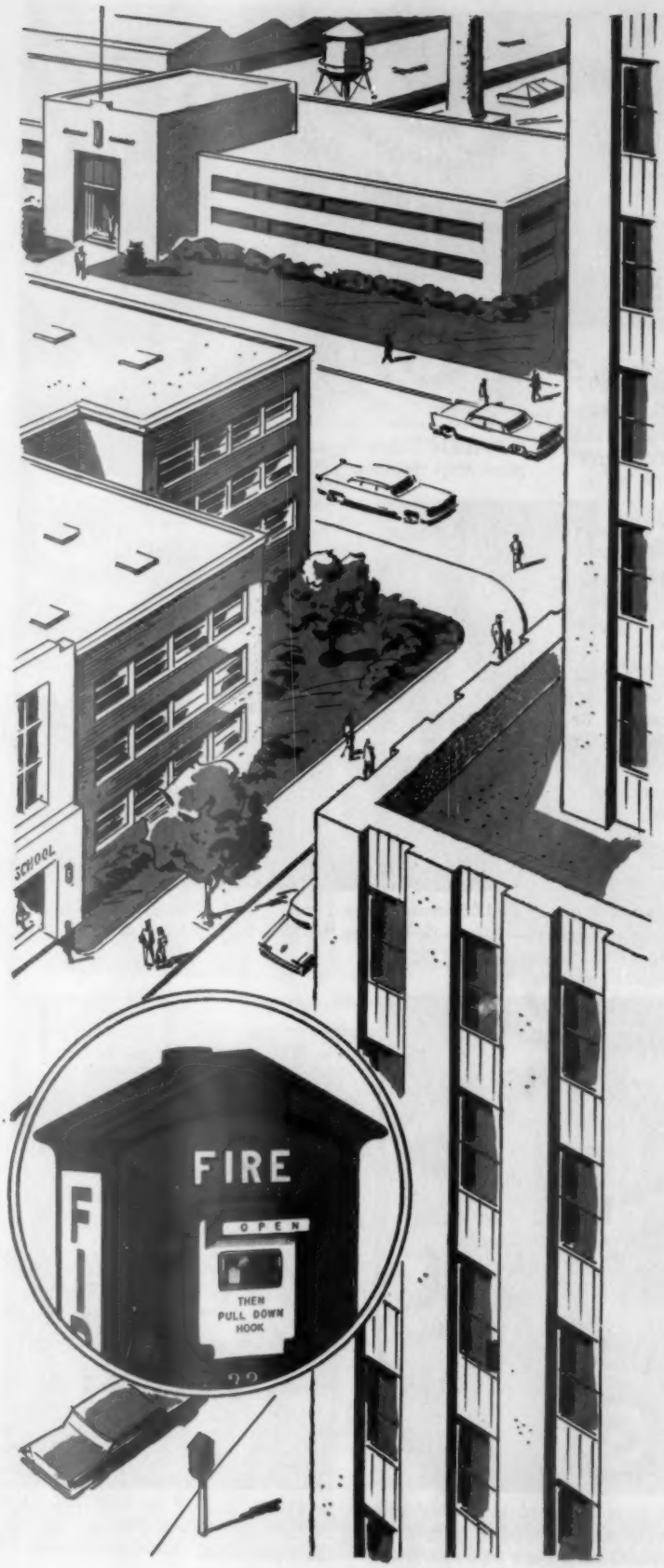
We left them there, and I sat on Madge's desk, taking notes from the admittance card. "You got anything else for me?" I asked Madge. "Well, when they brought Jack in, he said something about forgetting to lock out a switch," she replied. "Thanks," I said, starting for the door.

Madge said, "Men are such crybabies," and I looked back to see her steal a glance into the open door of the treatment room, a glance full of compassion and, I think, a little envy for the girl standing by her man.

Is all this meaningful, or is it merely the inevitable inefficiency of the accident situation, confusing with sentiment a simple enough engineering problem?

I wondered about it as I drove to the Drebby plant where the accident happened. I wondered about it more as I interviewed a defensive foreman, went over the scene of the accident and filled in a report form with unsentimental details.

—To page 136



Put PROVED dependability into interior FIRE ALARM systems!

You can provide today's *best* fire alarm protection for any industrial, commercial, or institutional building with a Gamewell FLEXALARM System. Thoroughly pre-engineered by the fire-protection professionals who developed the familiar "pull" fire alarm box, it assures the same unmatched efficiency and dependability *inside* buildings.

Precisely tailored to each installation, FLEXALARM is available as a coded or non-coded system, semi or completely automatic, with practically limitless possible combinations of annunciators, special drill, test, and alarm features. For example, it can be tied into the municipal alarm system at the curb; integrated with the sprinkler system; or automatic fire detection devices.

FLEXALARM is designed for unit-by-unit expansion depending on specific life hazards, fire defense plans and the growth of your plant. It's simple to specify, easy to install, efficient and economical. Gamewell will be happy to assist with fire detection engineering of new construction, expansion, or modernization, if desired. It's a service that gives you the benefit of over 100 years' experience with fire protection systems. Specify Gamewell . . . single source for engineering assistance and complete product line . . . maximum protection at minimum cost. Write THE GAMEWELL COMPANY, Dept. 6D, Newton Upper Falls 64, Mass.

Gamewell

FIRST...WHEN SECONDS COUNT

Circle Item No. 12—Reader Service Card

Safety Gets Top Billing in German Plants

ACROSS THE ATLANTIC safety men have usually leaned heavily on factory legislation in order to keep workers safe. European countries have never tried to draw the worker into safety participation to the degree found in the United States. And consequently, safety has often been a dull, legalistic matter.

But all this is changing. Since World War II numerous delegations of safety men from the Continent have visited this country and have seen the way accident prevention is promoted here. Some have stopped at NSC headquarters to get a fill-in from the Council staff.

And, as might be expected, many ideas have found their way from the New World to the Old World.

Should an American safety man, lucky enough to be touring abroad this year, visit an industrial plant in Germany, he might feel surprisingly at home with the evidence he finds of sprightly safety promotion.

On this page are a few displays that appear at the gates of German plants. They are typical of the great strides being made in Europe to interest the worker in accident prevention.

The photographs originally appeared in a well-known West Berlin safety journal, *Sicher ist Sicher*.

"TRAFFIC Safety Week" display in showcase at the Ford plant helps promote off-the-job safety.

PRIZE contests are popular in Germany, too. Sign and arrow show workers where to enter traffic contest.

GERMAN Ford plant announces safety film showings on this attractive series of panels.

ONE large Berlin plant (Borsig) uses kiosk to display accident prevention posters. Messages are tape-recorded.

SAFETY posters on this five-sided display greet workers at the gate of the Opel plant.

COPPUS "BLUE RIBBON" VENTILATORS

identified by the blue band

FOR WORKERS'

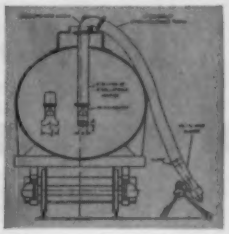
- *Safety*
- *Health*
- *Comfort*
- *Efficiency*

VANO® Design "A" VENTILATOR

Vano Design "A" cooling interior of furnace, supplying fresh air through 10 feet of "Ventube" to provide safety and comfort during repair work.

Vano Design "A" delivering fresh air to cable manhole, expelling sewer gas, making entrance safe in a few minutes.

Vano Design "A" Ventilator plus a few accessories feeds large air volume into tank car, driving out fumes, stagnant or hot air for workers' safety and comfort.

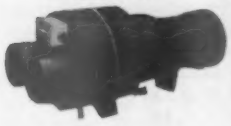


Vano Design "A" supplying fresh air in Reactor Room of Synthetic Rubber Plant.

Vano Design "A" Ventilator supplying fresh air to men working in wing compartments, fuselages, etc.

Powered by a ½hp motor, and equipped with the exclusive Coppus axial-flow propeller-type fan, this general-purpose blower delivers 1500 CFM of fresh air. It supplies ventilation for tanks, tank cars, drums, vats, underground cable manholes, pipe galleries, airplane wing compartments and fuselages, and other confined places. Weighs only 103 lbs. Uses 8"-diameter flexible canvas tubing ("Ventube").

VANO DESIGN "C" VENTILATOR-EXHAUSTER



Vano Design "C" equipped with 8" discharge tubing removing welding fumes.

Vano Design "C" equipped with two suction lines removing welding fumes for operators' safety.

For withdrawing welding fumes from confined places or directly from the welding rod ...or for expelling fumes or hot air from enclosed vessels. You can get it with 8" suction inlet for 8" non-collapsible tubing ...or with multiple inlet nozzles for 5", 4" or 3" suction hose. The discharge outlet takes 8" "Ventube". Powered by a ½ hp motor, it weighs only 85lbs.

COPPUS ENGINEERING CORP., 129 PARK AVENUE, WORCESTER 2, MASS.
Please send information on the Blowers that clear the air for Action.

- ☐ in tanks, tank cars, drums, etc.
- ☐ in underground cable manholes.
- ☐ in aeroplane fuslages, wings, etc.
- ☐ on coke ovens.
- ☐ on steam-heated rubber processes.
- ☐ on boiler repair jobs.

COOLING:

- ☐ motors, generators, switchboards.
- ☐ wires and sheets.
- ☐ general man cooling.
- ☐ around cracking stills.
- ☐ exhausting welding fumes.
- ☐ stirring up stagnant air wherever men are working or material is drying.

NAME.....
COMPANY.....
ADDRESS.....
CITY.....

(Write here any special ventilating problem you may have.)

COPPUS "BLUE RIBBON" PRODUCTS — *Designed for Your Industry, Engineered for You*

Circle Item No. 14—Reader Service Card

SEE

The World's largest display of safety products & equipment

the Exposition

of the National Safety Congress

Almost every major manufacturer of a safety product will be represented at the Exposition . . . the greatest collection of accident prevention equipment, training aids and ideas ever assembled under a single roof! These exhibits will offer you much of interest and usefulness in making your plans for Safety in the Sixties. Be sure to see the entire three floor exhibit. You'll find it time well spent!

the Conrad Hilton Hotel
Chicago, October 19-23

North & South Exhibition Halls
Second and Third Floors

Open Daily
8:30 A.M. to 5:30 P.M.

Closing Thursday
October 22, 5:30 P.M.

Program meetings will continue through Friday morning, October 23

OLD FRIENDS AND NEW

IF YOU'RE like most delegates to the 47th National Safety Congress, you wouldn't think of missing the big, colorful show in the Exhibition Hall of the Conrad Hilton Hotel.

Whether your interest is in industrial accident prevention, fire protection, sanitation maintenance, hygiene, or in traffic safety, you'll find plenty that's interesting and helpful among the exhibits.

Introducing . . . . . .

39 years
Mine Safety Appliances Co.

38 years
Stonehouse Signs, Inc.
Surty Mfg. Co., Inc.

34 years
American Optical Co.
Elliott Service Co., Inc.

33 years
The Patent Scaffolding Co., Inc.

32 years
Davis Emergency Equipment Co., Inc.
Lehigh Safety Shoe Co.
Standard Safety Equipment Co.

31 years
Metropolitan Life Insurance Co.
Pulmosan Safety Equipment Co.
Safety First Shoe Co.
W. H. Salisbury & Co.

30 years
Alfred M. Best Co., Inc.
Chicago Eye Shield Co.
Gro-Cord Rubber Co.
Willson Products Division, Ray-O-Vac Co.

29 years
The Protectoseal Co.

28 years
R. H. Buhrke Co.

27 years
E. D. Bullard Co.
Hy-Test Safety Shoe Div., International Shoe Co.
Walter Kidde & Co., Inc.

26 years
American LaFrance Corp.
Iron Age Div., H. Childs & Co., Inc.

25 years
Industrial Gloves Co.
Safety Clothing & Equipment Co.

23 years
Columbus McKinnon Chain Corp.
Dockson Corp.
Junkin Safety Appliance Co., Inc.
Justrite Mfg. Co.
Keystone View Co.
Milburn Co.

22 years
Kimball Safety Products Co.
Martindale Electric Co.
G. H. Packwood Mfg. Co.

Industry's growth has brought some complex safety and health problems and greater fire risks. As a result, manufacturers have improved standard products and added new lines. Many newcomers have come out with specialized products.

Safety standards established by advisory and regulatory bodies have become more exacting. The safety equipment industry keeps abreast of these developments and participates in the development of many codes.

In the list below you will find many old friends—manufacturers and distributors with whom you have been doing business for years. Working with you, they have helped to make industry safer, cleaner, and more pleasant.

When you're visiting the exhibit, don't neglect these old friends. But don't pass up the opportunity to cultivate new ones.

the Exhibitors at the 47th National Safety Congress and Exposition . . . old faces and new

Rose Mfg. Co., Inc.
Wheeler Protective Apparel, Inc

21 years

Thom McAn Safety Shoe Div.
A. Schrader's Son Div., Scovill Mfg. Co., Inc.

20 years

Aetna Casualty & Surety Co.
Ampco Metal, Inc.
Ansul Chemical Co.
Bausch & Lomb Optical Co.
Stewart R. Browne Mfg. Co., Inc.
Karel First Aid Supply Co.
Walter G. Legge Co., Inc.
Lightfoot Co.

19 years

Hild Floor Machine Co.
Sellstrom Mfg. Co.

18 years

Acme Protection Equipment Co.
Insto-Gas Corp.
Medical Supply Co.
Onox, Inc.

17 years

M. E. Cunningham Co.
J. H. Emerson Co.
Surety Rubber Co., The

16 years

American Chain & Cable Co., Inc.
General Fire Extinguisher Corp.
Williams Jewelry & Mfg. Co.

15 years

Mathias Klein & Sons
United States Safety Service Co.
Watchemoket Optical Co.

14 years

A. B. Chance Co.
Marsh & McLennan, Inc.
Occupational Hazards
Scott Aviation Corp.
S. G. Taylor Chain Co.

13 years

E. I. duPont de Nemours & Co, Inc.
Julian A. McDermott Corp.
Miller Equipment Co., Inc.
The Positive Safety Mfg. Co.
Randolph Laboratories, Inc.
Stephenson Corp.

12 years

W. M. Bashlin Co.
Racine Glove Mfg. Co., Inc.
Rockwood Sprinkler Co.
Welsh Mfg. Co.

11 years

American Allsafe Co.
Edmont Mfg. Co.
Jomac, Inc.
Porto-Clinic Instruments, Inc.

10 years

Advance Glove Mfg. Co.
Alan Wood Steel Co.
W. H. Brady Co.
Dow Corning Corp.
Fendall Co.
The Pac-Kit Co.
Union Wire Rope Corp.

9 years

Chemical Corp.
Detex Watchclock Corp.
Fyr-Fyter Div. of Fyr-Fyter Co.
Institute of Industrial Launderers
Micro-Switch, a Div. of Minneapolis-Honeywell Regulator Co.
Osborn Mfg. Corp.

8 years

Frommelt Industries
The Globe Co., Grip-Strut Div.
Hygiene Research, Inc.
Interstate Rubber Products Corp.
Jackson Products, Air Reduction Sales Co., a Div. of Air Reduction Co., Inc.
Jones & Co.
Kelley Paint Co.
J. Kunz Glove Co.
Lowery Brothers Co., Inc.
Maico Electronics, Inc.
Safety First Products Corp.
Safety Tower Ladder Co.
Stop-Fire, Inc.

7 years

Bil-Jax, Inc.
Boyer-Campbell Co.
Haws Drinking Faucet Co.
Newco Mfg. Co., Inc.
Prairie State Products Co.
Safety Box Toe Co.
Wagner Sign Service, Inc.

6 years

Award Incentives, Inc.
Beryllium Corp.
Bethlehem Steel Co.
Fine Organics, Inc.
Petersen Engineering Co.
The Pioneer Rubber Co.
Radiator Specialty Co.
U-C Lite Mfg. Co.

5 years

Akron Brass Mfg. Co., Inc.
American Biltrite Rubber Co.
Beltone Hearing Aid Co.
Lester L. Brossard Co.
Fibre-Metal Products Co.
Ford Motor Co.
Knapp Bros. Shoe Mfg. Co.
Logan Emergency Showers
National Medical Supply Co.
R. J. McQuarrie Enterprises
Sarole, Inc.
Riegel Textile Corp.
Swivelier Co., Inc.
Tect, Inc.
Westline Products, Div. of Western Lithograph Co.
The Wilson Rubber Co., A Div. of Becton, Dickinson & Co.

4 years

Chrysler Corp.
DeWalt, Div. of American Machine & Foundry Co.
Glendale Optical Co.
Jones & Laughlin Steel Corp.
Notifier Corp.
Putnam Rolling Ladder Co., Inc.
Safeguard Mfg. Co.
Searjeant Metal Products, Inc.

3 years

American Industrial Safety Equipment Co., Inc.
Antrex Corp.
The J. R. Clark Co.
Eagle Mfg. Co.
Elkhart Brass Mfg. Co., Inc.
Grinnell Co., Inc.
Halperin, A. E. Co.
Leeder Mfg. Co., Inc.
Progress Industries, Inc.
Titmus Optical Co., Inc.
U. S. Rubber Co.

2 years

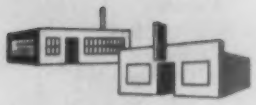
American Brattice Cloth Corp.
American Optometric Assoc.
Campbell Chain Co.
Dow Chemical Co.
Federal Sign & Signal Corp.
Fyrepel Products, Inc.
Hamilton Watch Co.
Industrial Acoustics Co.
McKay Co.
Oxy-Gear Inc.
Perfect Circle Corp.
Portable Light Co., Inc.
Saf-T-Boom Sales & Services Corp.
Stanton Scientific Equipment

1 year

Paul Brown Fyre-Blok, Sales, Inc.
David Clark Co., Inc.
Conductive Hospital Accessories Corp.
Defense Apparel
R. E. Dietz Co.
Globe Industries, Inc.
Lawter Chemicals, Inc.
Meyer Machine Inc.
National Disinfectant Co.
Stephen-Williams Co.
Switzer Brothers, Inc.
Zenith Radio Corp.

EDUCATIONAL EXHIBITORS

Inter-American Safety Council, Inc.
Junior Achievement of Chicago
National Society for the Prevention of Blindness
President's Committee on Employment of the Physically Handicapped
Weirton Steel Co.



SMALL BUSINESS and ASSOCIATIONS

By A. M. Baltzer and John T. Curry
Small Business Program Staff, National Safety Council

Metals Section, Associations Cooperate

One of the Congress sessions of the Metals Section will feature a meeting co-sponsored with the Steel Plate Fabricators Association (Chicago). Mr. J. Dwight Evans, executive director, has given widespread publicity to this session through mailings to the entire industry.

This is the type of cooperation that benefits trade associations and the sections with which they are identified. Other sections are urged to adopt this idea when arranging programs for regional safety conferences of the Congress.

Labor Turnover Costly

A wire service story in the *Chicago Daily News* (June 15) highlights the cost of labor turnover, particularly among young wokers. A survey of 768 textile and apparel firms showed an average loss of about $400 for replacing each trained employee. In other industries the cost is estimated as high as $2000!

The article fails to mention work injuries as a reason for unnecessary turnover, but our readers can readily add that item. This story is a little more economic ammunition on the indirect losses of work accidents. What are your operation's turnover losses?

Lost—$400 a Minute

The National Provisioner reports on the latest meeting of the executive committee of our Meat Packing, Tanning and Leather Products Section. Some startling figures were brought out.

John Thurman of Oscar Mayer & Company claimed that a one-minute stoppage of a hog-dressing conveyor chain costs $400 in lost labor. He pointed out that, with increased mechanization, work stoppages idle entire crews with high indirect costs.

The group discussed the ratio of direct-to-indirect losses, and most members contended that the one-to-four ratio was too conservative; a more realistic ratio for this type of operation could be one-to-eight!

More Associations Use NSC Material

NSC policy, permitting associations to redistribute its material, has recently helped several more associations. Here's how:

The National Association of Bedding Manufacturers sent the Council's booklet "What's In It For Me?" (with order blank and prices) to its members.

The Institute of Scrap Iron & Steel, Inc., distributed 1,700 of our flyers, "An Accountant Looks at Accident Costs."

The National Crushed Stone Association offered our 1960 Safety Calendar to its members.

The Associated General Contractors of America routinely sends samples of our data sheets, safety instruction cards, and other construction safety material to 170 A.G.C. chapters, with suggestions for ordering additional copies direct from NSC.

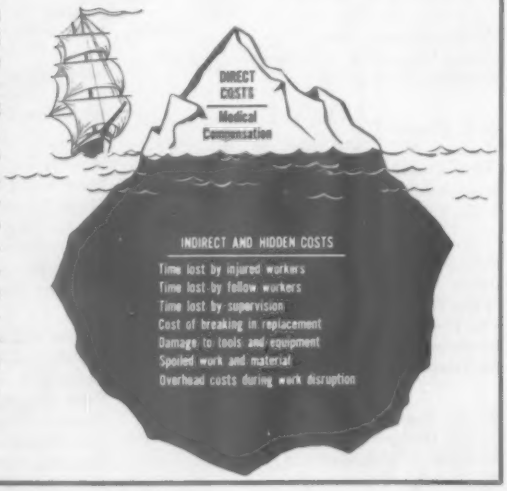
The Dominion Brewers Association, in its monthly *Safety News Digest*, always mentions at least one new or special publication available from the Council and other agencies.

Safety Exhibit Idea

The Associated General Contractors of America, Inc., recently came up with an idea which has been made available to their chapters throughout the country. Various sections of the *A.G.C. Manual of Accident Prevention* are mounted on a large bulletin board, with 8½ by 11¼-in. glossy photos mounted

THE COSTS OF WORK ACCIDENTS—LIKE AN ICEBERG ARE LARGELY HIDDEN

WHETHER indirect losses are eight times direct losses or equal them depends on the industry or specific operation. The iceberg analogy still holds true; indirect or hidden costs should be considered. The inefficient "production ship" runs into things which cause accidents or near-accidents many times before it is damaged by a mishap or sunk by an injury or fatality. (If the iceberg idea helps you, go ahead and use it.)



below appropriate sections to illustrate important points in the manual's presentation.

The idea can be used by any association or by any company using photographs to highlight important safety rules. For example, a rule requiring the use of goggles on a specific job can be illustrated with a photograph of a man wearing goggles under typical work conditions.

Why not try this effective way to dramatize your organization's safety rules?

Road Building Safety

The May issue of the *American Road Builder,* published by the American Road Builders Association, Washington, D. C., was 99 per cent devoted to accident prevention. Even the advertisements were tied in with traffic or construction safety.

American Road Builders Association and its editorial staff is to be congratulated for this special safety issue, which featured articles by Howard Pyle, president of the National Safety Council, and other nationally known figures in traffic and occupational safety.

Associations Surveyed

In the past few months, surveys of accident losses and safety activities were completed for:

Flat Glass Jobbers Association
Illinois Dairy Products Association
Mason Contractors' Association
National Association of Architectural Metal Manufacturers
National Screw Machine Products Association
National Woodwork Manufacturers Association
Sanitary Institute of America
Structural Clay Products Institute
Water Conditioning Association International

Without exception, injury rates far exceeded national averages. Based on estimated profit margins in these associations, their members would have to do approximately $300,000,000 additional business just to offset the waste of accidents.

That's been our story to associations considering a survey. We suggest you use it to encourage associations in your field to greater effort.

POSTERS PACK A PUNCH

They're large, they're vivid, and they're placed where the hazards are found

GEORGE KITCHEN, safety director for F. H. Peavey & Co., points to display of posters developed by the company.

A "PERSONAL," hard-hitting safety poster series—the first specifically created for the grain and milling industry—has been developed by F. H. Peavey & Company, Minneapolis.

Highlighted features of the posters, says George L. Kitchen, safety director, are their believability, size, readability, placement, meaningful headings, and simplicity.

"These posters fill a definite safety gap," said Kitchen. "We have felt a need for visual safety instructions applicable to our industry. A review of past accident records demonstrated several areas that required constant attention. Because there were few materials available that fitted these specific operations, we decided to plan an entirely novel and purposeful poster program.

"In planning we incorporated the combination of fundamentals that would pack the series with a lot of punch. Perhaps the strongest of these factors in the entire program is the use of the phrase 'Experience Has Taught Us.' This expression gives continuity to the series and provides the natural opening for presenting 'personalized' accident statistics."

ACCIDENT statistics provide material for these aids to job instruction. Each poster has the key phrase "Experience Has Taught Us," followed by a footnote reporting an actual accident from the company's records.

Each poster provides instructions regarding a definite work hazard. Included in the brief message is a dramatic accident statistic showing what happened to a fellow worker who had ignored that particular safety rule.

"These messages are meaningful

—To page 98

SIZE is a dramatic feature of the custom-made safety posters. Designed to be seen, they are printed in bright colors in sizes up to 35-45 in. Headlines are simple and meaningful.

LOCATION of posters puts safety "on the job." Workers get the message at the point of operation, rather than on some remote bulletin board. The message is keyed to the job.

OK, SIR ISAAC, WE DID IT!

Not since that unfortunate incident in the Garden of Eden has an apple played such an important part in man's destiny as when Sir Isaac Newton dramatically discovered the law of gravity.

Unhappily, a falling object must find impact and far too often that impact was on some part of man's anatomy. Something had to be done about that!

OK, Sir Isaac, we did it...particularly since the target area was in too many instances man's toes. A trail blazing job in foot protection was done by Safety Box Toe Company.

Today's **19 styles** of austempered steel toes include every advancement over the years from the original Munson type crudely hammered out in an old New England blacksmith shop, to the modern precision built WINGUARD steel toes.

Write today for your illustrated copy of
A PROGRESS REPORT OF INDUSTRIAL FOOT PROTECTION

Safety Box Toe Company
812 STATLER BUILDING · BOSTON

Circle Item No. 16—Reader Service Card

CONSULTATION CORNER

Questions on accident prevention, fire protection and occupational hygiene are answered by mail. A few are selected for publication

By L. C. SMITH, Industrial Department, NSC

Data on Dieldrin

(The information below was submitted by our readers as additional information to supplement the article on Dieldrin that appeared in the June, 1959, *Consultation Corner.)*

Dieldrin, as a moth-proofing agent, is applied to wool in the vat dyeing process. This usage has been registered by the Department of Agriculture. Such registration carries the implication there is no hazard to the wearer.

Under conditions of use as a moth-proofing agent, there is no reason for an applicator to have significant exposure.

Dieldrin is one of several materials used by the pest control industry to provide control of a variety of insect pests of economic and public health importance.

If label instructions are followed, insect control can be achieved with such small amounts of insecticide that any contamination of the environment is insignificant.

Tinted Glass For Crane Cab?

Question: In our welding shop we often have more than 20 welders working at the same time. Our crane operators have been complaining that their eyes are affected by these operations. The operator is about 20 ft above the floor level.

We are thinking about installing tinted glass in the crane cabs. Do you know where such glass can be obtained and whether this would solve the problem?

Answer: The installing of colored glass in crane cabs or putting colored glasses on your crane operators would introduce additional problems. Colored or tinted glass of any type would interfere with normal vision. With crane operators this could be serious. They need good vision to work safely.

At 20 feet there is no danger that the operators' eyes would be affected. Most complaints from this source are psychological in nature.

Since the flashes may be distracting to the operator, steps should be taken to reduce flashes to a minimum. One method is to stagger welding operations as much as possible. In this manner, as he passes over the welders, the crane operator will *not* encounter a series of successive flashes—like meeting a number of cars at night with their bright lights on.

Shielding welding operations also helps. This can be done by using flame-resistant canvas over a framework of small pipes. Anything that will prevent the operator from looking at the flashes will be beneficial. If nearby walls reflect light, painting the walls darker will absorb the flashes.

Screening and staggering the welding operations may require considerable planning and ingenuity, but these techniques will solve your problem.

Carbon Tetrachloride Measured In Air

Question: What information do you have on procedures used for measuring carbon tetrachloride in air?

Answer: There are four general methods used to analyze the halogenated hydrocarbon content of the air. Halogenated hydrocarbons include carbon tetrachloride, trichlorethylene, 1, 1, 1—trichloroethane, and other substances.

These methods are:

1. Potentiometric titrator.
2. Conductivity apparatus.
3. Flame photometer (field).
4. Infrared spectrophotometer.

One portable instrument of the flame photometric type can be used on 110-volt, 60-cycle a. c. electricity. It is provided with a 25-ft cable and a 20-ft sampling hose, so it can take samples in a 45-ft radius from the source of electricity.

With this instrument it is not possible to differentiate between carbon tetrachloride and trichlorethylene. In other words, the machine will register any halogenated hydrocarbon in the area. This instrument will measure concentrations of from 0 to 400 parts per million.

Another sampler, not portable, of the infrared analyzer type, will measure concentrations of from 0 to 10,000 ppm. of carbon tetrachloride. Instruments operating on one of these methods are commercially available.

It is possible to do air sampling and analysis without such instruments. This requires proper sampling equipment and access to a good chemistry laboratory. Several such methods are described in the book, *Chemical Methods in Industrial Hygiene,* published by Interscience Publishers, Inc., New York City.

Dockson

HEAD & EYE PROTECTION means DEPENDABLE SAFETY with ECONOMY!

Model 1475
Turretype Helmet

Model 1225
Turretype Handshield

Model 1105
Face Shield

Model 1145 Maximum
Coverage Face Shield

Model 440 Soft
Frame Goggle

Model 90 Cover-
Spectacle Goggle

Model 40
Spectacle Goggle

Model 26
Spectacle Goggle

Model RA-110 Light
Duty Respirator

Model 36 Featherweight
Protective Mask

Only in the Dockson line can you find such quality, comfort and economy.

Practical, up-to-the-minute designing based on our many years of experience . . . good quality materials . . . careful fabrication and constant, strict inspection put Dockson products in a quality class far above their economical pricing.

Their many exclusive and desirable features contribute greatly to their efficiency, safety and operator comfort.

You'll find a Dockson product to meet your requirements both in quality and in realistic cost.

Dockson CORPORATION

3839 WABASH AVENUE
DETROIT 8, MICHIGAN

Laboratory Works 30 Safe Years

A safety record believed to be unique in industry—30 years without a disabling injury on the job—was achieved July 1 by employees of DuPont's Elastomers Laboratory at Chestnut Run near Wilmington, Del.

Since July 1, 1929, the day the lab first opened at its original location at Deepwater Point, N. J., it has operated more than 5.1 million man-hours without a disabling injury. The lab has attained this record despite such potential laboratory hazards as high-pressure steam equipment, acids, flammable liquids, fumes, and wringer-type machinery. In 1955 the laboratory was moved to its present site at Chestnut Run.

This is the longest injury-free time span recorded by any unit of the DuPont Company, which has received 14 Awards of Honor from the National Safety Council.

LET ME DIE WITH DIGNITY

By KATHRYN MORRIS

I'D AS SOON be killed and eaten by cannibals as to die in an automobile accident.

Like anyone else who never will elect to become a suicide, I shall not be able to choose the time, the place, or the means of my own death. But, like anyone else, I have preferences.

And I can think of no more repugnantly undignified a way for my life to end than to become one of the thousands who die annually on our streets and highways.

What impresses itself indelibly upon my mind as I see the aftermath of serious injury and death in traffic crashes is the fact that an accident victim is denied the personal privacy and public sympathy most of us aspire to when we consider our own deaths.

With the exception of mishaps which take place in remote or inaccessible spots, any crash immediately draws a crowd of spectators, some of them officially concerned, most of them simply morbidly curious.

Victims, be they innocent babies, over-vibrant teen-agers, well-behaved adults, or sedate elderly persons, are subjected to the avid scrutiny of those who will regale listeners for days with lurid details of what they saw.

Bleeding, broken, clothing pulled indelicately awry, limbs grotesquely sprawled, senses befuddled, or faces mirroring the shocking finality of sudden death, the accident victim has lost, in the moment of impact, that intangible but precious commodity known as human dignity.

It is my profound conviction that every individual is entitled to look forward to inevitable death with serenity, with the assurance that when his time comes to die, he can "wrap the draperies of his couch about him and lie down to pleasant dreams" without an audience of gaping strangers surrounding him.

Almost anyone, whatever his station in life, whatever his education, his religion, or his personal philosophy, will concede a certain attitude of respect toward the newly dead—except on the highway.

After a wreck, all canons of good taste, good conduct, and good sense are relaxed, and the mob instinct prevails.

Death on a public thoroughfare provides much the same sort of spectacle as a lynching. I want none of it, for myself, or for anyone I love.

I'd like to die with dignity.

Radar Hazards

—From page 40

of the radar beam may be sufficient to ignite fuses at a considerable distance. The antenna effect of the connecting wires may cause them to pick up enough additional energy to ignite fuses at a distance considerably greater than would normally be expected.

Fire in Electronic Equipment

40. Fire may occur in electronic equipment primarily because of arcing, which may ignite the insulation, the transformer, or the capacitor oils. Dust, dirt, or lint saturated with oil will contribute to the possibility of fire.

41. Proper housekeeping helps minimize the fire hazard. Cleaning with a vacuum cleaner or brush is recommended. If an air hose is used, it should be provided with a fiber nozzle and control valve so the air flow can be regulated to prevent the air blast from damaging insulation, loosening components, or causing the hose to whip if it is dropped. If air is used for cleaning, the operator and others in the area should wear safety glasses with well-fitted side shields or molded frames.

42. Three types of extinguishers are effective on fires in radar equipment, but one of those types can present a hazard that must be guarded against.

a. Carbon dioxide is an excellent extinguishing agent. It controls the fire by smothering it without damaging the unit further. It has only temporary effect on Class A fire materials, such as large groups of insulated wire which is not flame

Correction

In Data Sheet 478, Figures 1 and 3 on pages 27 and 28, July NEWS, the illustrations were incorrectly credited to Columbus-McKinnon Chain Corporation instead of to American Chain Division, American Chain & Cable Company, Inc., to whom our apologies are extended.

NOW...

A WATERPROOF SAFETY BOOT

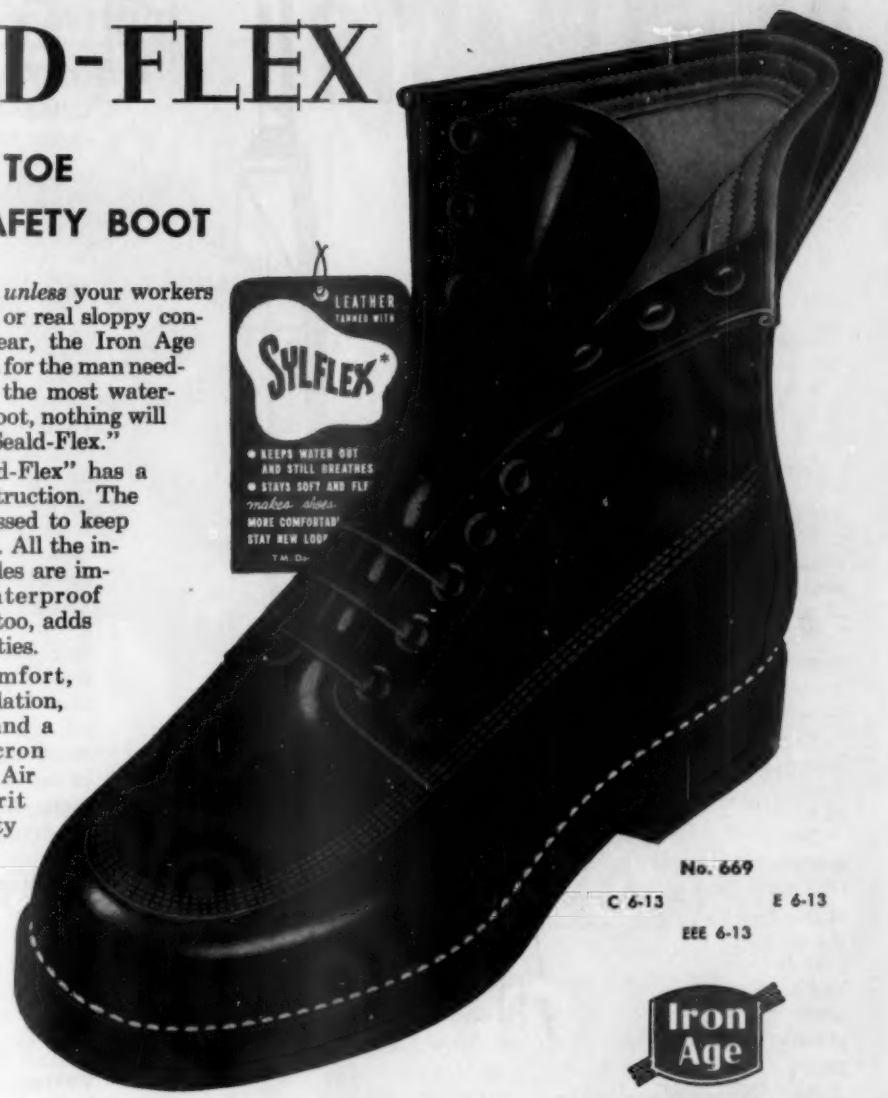
The Iron Age SEALD-FLEX

STEEL TOE
INSULATED SAFETY BOOT

You don't need this boot unless your workers are exposed to icy cold or real sloppy conditions. For normal wear, the Iron Age safety boots will do. But for the man needing the best insulated, the most waterproof steel toe leather boot, nothing will take the place of the "Seald-Flex."

The Iron Age "Seald-Flex" has a completely sealed construction. The leather is Sylflex processed to keep out water, yet let in air. All the inseams and stitching holes are impregnated with a waterproof sealer. Plastic welting, too, adds to the waterproof qualities.

For on-the-job comfort, there's full depth insulation, a full leather lining and a cushion insole. Dacron stitching and Bearfoot Air Cushion Neoprene grit outsoles are added quality features. Try this outstanding Iron Age shoe value —now.



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Iron Age

The Safety Shoe for Industrial America

Iron Age SAFETY SHOES

1205 MADISON AVENUE PITTSBURGH 12, PA.

Circle Item No. 18—Reader Service Card

resistant. Such materials must be watched and re-extinguished if necessary until they are cool. Blowers and fans should be shut off as soon as possible to prevent dissipation of the CO_2.

b. Dry chemical extinguishers are more effective, weight for weight, than carbon dioxide, but equipment on which they are used must be cleaned up afterwards. Special care must be taken to remove all the chemical, which is an insulator, from relays and other contact devices.

c. Vaporizing extinguishers are effective but must be used with extreme caution, especially in confined spaces, because of the highly toxic nature of their extinguishing materials.

Medical Control

43. Before personnel are assigned to work in or around radar equipment, they should be checked medically, with emphasis on general physical condition and blood condition. A complete eye study, including slit lamp examination, should be made. Whether or not the person has metal plates, pins, or other metal implants in his body should be included in the written history.

44. Personnel working with or near microwave exposures should receive periodic physical examinations in accordance with a definite set schedule. Personnel believed to have been exposed to microwaves in excess of 0.01 watt per square centimeter should be given a physical examination as soon after such exposure as possible and periodically thereafter.

ACKNOWLEDGMENT

This data sheet was written by Marshall Kulberg, safety engineer, Sylvania Electric Products Company, Woburn, Mass., and vice-chairman, Engineering Committee, Electrical Equipment Section, National Safety Council. It has been extensively reviewed by members of the National Safety Council and representatives of chapters of the American Society of Safety Engineers. It has been approved for publication by the Publications Committee of the Industrial Conference of the National Safety Council.

New from Wright!

Built-In Overload Protection for Operator, Load and Hoist with the New Wright Overload Cutoff*!

• Now, for the first time on any electric hoist, you can have safe, sure mechanical overload protection as a built-in feature with the **WRIGHT Overload Cutoff.** Designed and built to fit any new WRIGHT *Speedway* Electric Hoist, the Overload Cutoff unit you see pictured above is a compact, integral part of the hoist frame itself. As a result, it becomes a functional part of the hoist *at no sacrifice in headroom.* The WRIGHT Overload Cutoff is simple in design and should give dependable, trouble-free operation during the entire life of the hoist under normal operating conditions. Calibrated and sealed at the factory for the user's protection, the unit takes rugged abuse up to the critical point of overload—then instantaneously "breaks" the raising circuit of the hoist. This allows the load to be safely lowered to the floor and unhooked. Once this is done, the raising circuit of the hoist is again automatically restored.

The WRIGHT Overload Cutoff is available now as standard equipment on all new WRIGHT Frame 2 & 3 *Speedway* Electric Hoists, and as optional equipment on new Frame 1 & 1½ models.

Find out how WRIGHT *Speedway* Hoists equipped with Overload Cutoff can bring practical, fast-acting overload protection to your material handling operations. For complete information, write our York, Pa., office.

*Patent applied for

WRIGHT HOISTS

Wright Hoist Division • American Chain & Cable Company, Inc.

York, Pa., Atlanta, Chicago, Denver, Detroit, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.

ACCO

Circle Item No. 20—Reader Service Card

news briefs

More light

An eight-year research program has resulted in changes in recommended illumination values. One manufacturer who installed lighting to meet the new standards reported a drastic drop in rejected assemblies. Savings averaged $2,500 a day. Others reported higher production, fewer rejects, and a decrease in disabling injuries.

Lor'l Me Iorry!

A British tank truck driver picked up a load of sulphuric acid and went on his way. When he stopped in a pub to have a meal, a drunk got into his rig and drove it away. The police found the drunk babbling and apparently affected by more than alcohol. He reported that most of the truck had disappeared—nothing was left except the chassis and cab. What had happened was that the tank was made of aluminum and should not have been used for acid. The outside of the tank had been painted, and no one noticed it was aluminum.

Gold dust control

Engineers at a Canadian gold mine, finding ventilation expensive at their deep underground loading stations, used enclosure to solve their problem. A dust filter and recirculation equipment made it possible to operate without wasteful volumes of fresh air.

Nuclear fuel reprocessing

The AEC will sponsor a two-day symposium for management and technical personnel on the reprocessing of nuclear fuels in Richland, Washington, on October 20-21. The symposium is designed to review the technology currently available for reprocessing spent fuels from research, test, and power reactors. Full information is available from the Hanford office of AEC at Richland, Washington.

Alcoholism in industry

One industrial research director says employee safety records can help you spot alcoholics. He says accident repeaters are often suffering from hangovers. The percentage of alcoholism in different industries varies markedly. It is as low as 2 per cent in agriculture, forestry, and fishing, and as high as 30 per cent in manufacturing. The percentage varies with the degree of turnover. Migratory and seasonal factors affect the rate. It is higher in urban areas. Skilled workers hide the affliction better than the unskilled. Though more men are alcoholics than women, women tend to hide it better. Among both sexes, the 35 to 45 age group has the greatest incidence. Some nationality groups have an unusually high rate. Different areas of the country have different rates.

Stricter code

The collapse of the New York Coliseum while under construction on May 9, 1955, with injuries to some 140 workers, led to major revisions of the state's Construction and Demolition Code. The code has recently been expanded to specify requirements for shoring of concrete work. Previously, there had been no law governing this type of construction work.

Mud vs. fire

Forest fire fighters in Canada have used drilling mud as a cheaper substitute for chemicals in extinguishing forest fires. Drill mud, for the benefit of those unfamiliar with mining and petroleum exploitation, is a gooey mixture of wet rock dust and water.

Perfection no trifle

One reason Du Pont's Chattanooga nylon plant established a new world's record for industrial safety is surely its meticulous attention to detail. When management wanted to show the right way to unload diamine, a highly corrosive chemical used in the manufacture of nylon, they put a movie cameraman to work and photographed every operation involved. The camera was also used to show proper laboratory procedures and the fire brigade in action.

Jim Saul

SURE STEPS TO COMPLETE FIRE PROTECTION!

Just as a fireman's ladder must be long enough to reach the highest blazes, so should your fire protection extend to every possible hazard! The sure steps to complete fire protection require many different kinds of equipment. Now a single organization—Fyr-Fyter—can supply all the dependable, high-quality products and services you'll need! Fyr-Fyter's ladder of famous brands includes approved fire extinguishers; automatic sprinkler systems; carbon dioxide, dry chemical and foam systems; fire hose, nozzles and couplings; alarm systems; and fire department accessories, including ladders, sirens, clothing, breathing apparatus, first aid kits, etc.

To reach your goal of complete fire protection, you also surely need the deep knowledge and experience acquired by Fyr-Fyter representatives in industrial, commercial, institutional, municipal and household fields. These men are uniquely qualified to survey, analyze and recommend the proper equipment to guard every fire risk.

To contact the representative nearest you, look for Fyr-Fyter's family of brands in the yellow pages under "Fire Protection Equipment" or write to:

THE FYR-FYTER COMPANY

ATLANTIC COAST REGIONAL OFFICE
P. O. Box 750, Newark 1, New Jersey
CENTRAL STATES REGIONAL OFFICE
221 Crane Street, Dayton 2, Ohio
PACIFIC COAST REGIONAL OFFICE
132-140 Hawthorne Street, San Francisco 2, California

BRANCHES: Atlanta, Baltimore, Boston, Chicago, Dallas, Dayton, Detroit, Los Angeles, New York, Newark, Philadelphia, Pittsburgh, Portland, Rochester, San Francisco, Seattle, Toronto (Ontario)

Representatives and Distributors in all principal cities.

Circle Item No. 21—Reader Service Card

COMING EVENTS

in safety and related fields.

Sept. 7-11, San Francisco

Annual National Technical Conference of the Illuminating Engineering Society (Fairmont and Mark Hopkins Hotels).

Sept. 8-17, Colorado

Annual Governor's Traffic Safety Conferences: Greeley, Sept. 8; La Junta, Sept. 10; Durango, Sept. 15; Grand Junction, Sept. 17.

Sept. 9-10, Toronto, Canada

Road Safety Workshops—1959. Sponsored by Ontario Department of Transport (Royal York Hotel). W. B. G. Reynolds, Commissioner of Highway Safety, Highway Safety Branch, Ontario Department of Transport, Parliament Bldgs., Toronto 2, Canada.

Sept. 9-10, Harrisburg, Pa.

Pennsylvania Dept. of Labor and Industry Occupational Safety Conf. William L. Batt, Dept. Secretary, chairman, Room 1700, Labor and Industry Bldg., Harrisburg.

Sept. 9-10, Baltimore, Md.

Governor's Annual Safety-Health Conference and Exhibit. (Hotel Emerson.) Joseph A. Haller, executive chairman, Safety Conference, Dept. of Labor and Industry, State of Maryland, 12 E. Mulberry St., Baltimore 2, Md.

Sept. 10-11, East Lansing, Mich.

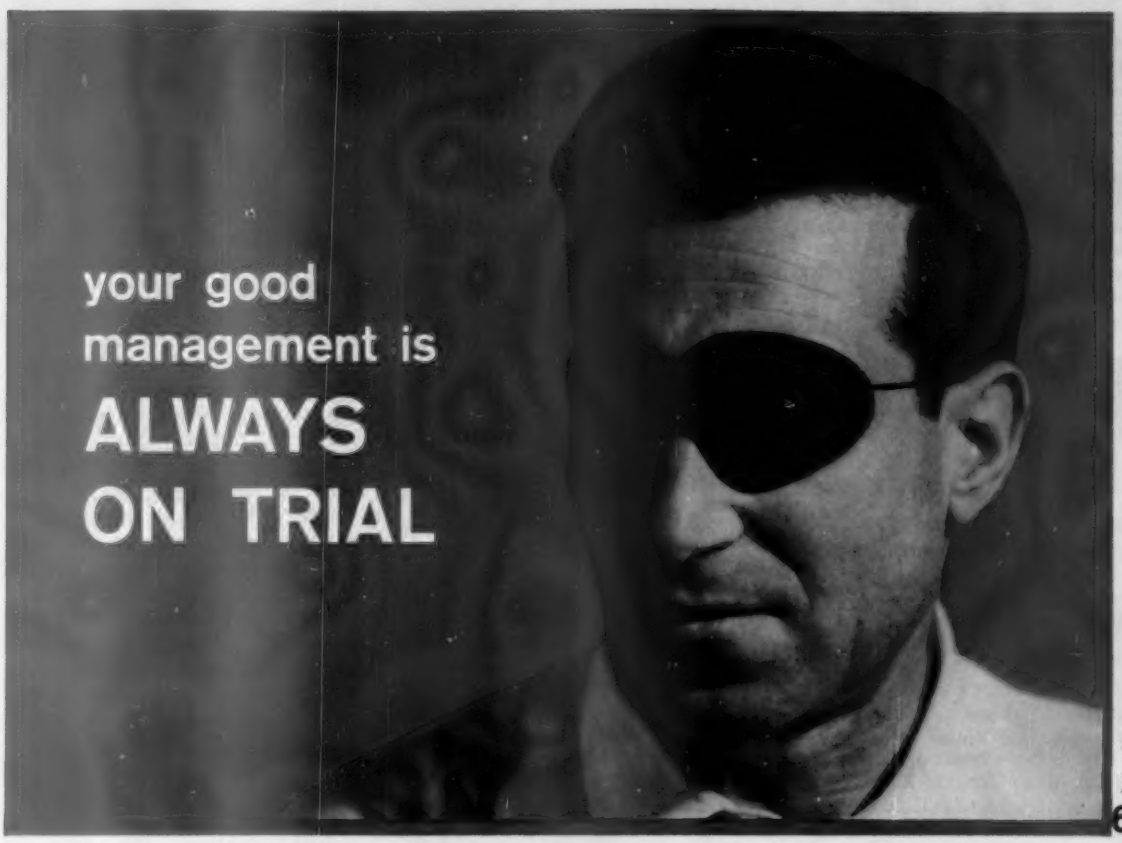
Fifth Transportation Conference and Seminar (Michigan State University, Kellogg Center).

Sept. 13-17, New York City

Institute of Traffic Engineers (Commodore Hotel). Institute of Traffic Engineers, 2029 K. Street NW, Washington 6, D. C.

Sept. 15-16, Atlanta, Ga.

Eleventh Annual Accident Prevention Conference (Dinkler Plaza



5 x 6¾

Eyesight is a priceless asset to the individual, the employer and to society, and its value can't be appraised in money alone. Protection and clear sight therefore, have a priceless place in industrial accident prevention and in efficient operation. Yet you can achieve both for pennies – the MAGIC way.

MAGIC Pop-up Pack in self-dispensing box for desks or anyplace in office, plant or laboratory, $11.95 per carton 12 boxes.

Our famous MAGIC Silicone-treated tissue deposits a protective film that keeps lens crystal-clear. The world's finest quality, MAGIC Lens Tissue far exceeds scientific needs. The sheet is BIG, in fact, EXACTLY AS BIG AS THE GREEN AREA ABOVE (6¾" x 5"). So you see how big it is; 50% larger than usual and has twice the tearing strength. Big and strong enough to clean the largest safety goggles. And both sides are packed with Silicone's Sparkle Power. Yet it costs less. It is interfolded – serving only one sheet at a time; not bunches. An exclusive feature with MAGIC. The compact dispenser is self-mounting; no screws, no drilling. Just stick it to the wall. No maintenance. No adjustments. No wear. No moving parts. Absolutely indestructible. More safety for less money.

MAGIC Heavy-Duty Stations are for grimy, oily areas or where Anti-Fog protection is needed. MAGIC Cleaning & Anti-Fog Fluid COMBINES all ingredients. No double inventory. And it's pressure-packed. 1,400 applications per can. Equals 4 old-fashioned bottles. No pump. Nothing to refill. No mess. (Or, if you wish to use your homemade fluid we supply our Adapter ($2.70) with giant 16-oz. bottle and plunger complete.) Indestructible dispenser – with no moving parts – releases interfolded sheets 1-by-1, greatly reducing waste. These (not Silicone-treated) are superb, super-strong, wet-strength quality. No scratching on plastic, and no lint. Yes, Good management is always on trial. Spend Pennies to Save Dollars. Buy The Leader. Buy MAGIC.

Magic Silicone Lens Tissue (6 refills (800) sheets ea.)	Ctn.	$ 8.40
Magic Lens Tissue Dispenser FREE WHEN EXCHANGED	ea.	2.50
Magic Heavy Duty Dispenser FREE WHEN EXCHANGED	ea.	5.95
Magic Cleaning & Anti-Fog Fluid (Twelve-12-oz. cans)	Ctn.	12.50
Magic Heavy Duty Paper (18 giant refills (760) sheets ea.)	Ctn.	11.60

All prices F.O.B. Shipping point

Exchange all your other Stations for Magic FREE

Magic Cleaning Stations

The Silicone Paper Company of America Inc. 75 East 45th Street, New York 17, N. Y.

Serving Every Major Industry in America

Circle Item No. 23—Reader Service Card

Hotel). Co-sponsored by Accident Prevention Committee of American Gas Association and Southern Gas Association's Accident Prevention Council.

Sept. 16, Rockford, Ill.

One Day Safety Seminar of Rock River Valley Safety Engineers Club. (Faust Hotel). Leroy Friestad, secretary, Rock River Valley Safety Engineers Club, c/o Rockford Screw Products Co., Rockford, Ill.

Sept. 17-18, Rockland, Maine

Thirty-second Annual Maine State Safety Conference, (Samoset Hotel). Arthur F. Minchin, secretary, Dept. of Labor and Industry, State House, Augusta, Maine.

Sept. 22-24, New York City

Fourth Annual Industrial & Building Sanitation-Maintenance Show and Conference. (New York Trade Show Building and New Yorker Hotel).

Sept. 29, Manhattan, Kan.

Tenth Governor's Industrial Safety Conference, (Kansas State University). R. L. Warkentin, Commissioner of Labor, Department of Labor, 401 Topeka Blvd., Topeka, Kan.

Oct. 19, Chicago

Executive Committee, Public Utilities Section (Conrad Hilton Hotel). Paul Windsor, Bureau of Safety, 20 N. Wacker Drive, Chicago 6.

Oct. 19-23, Chicago

Forty-seventh National Safety Congress and Exposition. (Conrad-Hilton Hotel). R. L. Forney, secretary, National Safety Council, 425 N. Michigan Ave., Chicago 11.

Nov. 4, Fort Worth, Texas

Fifteenth Annual Industrial Institute. (Hotel Texas). L. W. Graff, Fort Worth Safety Council, Majestic Bldg.

Nov. 12-14, Dusseldorf, Germany

Industrial Safety and Factory Hygiene Congress and Exhibition. Nordwestdeautsche Ausstellungs-Gesellschaft MBH., Ehrenhof 4, Dusseldorf, Germany.

April 5-7, Pittsburgh, Pa.

Thirty-fifth Annual Western Pennsylvania Safety Engineering Conference and Exhibit (Pittsburgh Hilton Hotel). Harry H. Brainerd, executive manager, Western Pennsylvania Safety Council, 305 First Federal Building, 600 Grant St., Pittsburgh 19, Pa.

Tonic for Tired Plant

—From page 29

the steam jets, practice was required before plant employees mastered the technique of "peeling" for fast removal of heavy layers of dirt.

As machines were steam cleaned, moisture and dirt were removed from the floor to keep the hardwood block floors from swelling. A mixture of sand and sawdust, spread in heavy layers under and around machines, absorbed the water as it condensed and dropped to the floor. This allowed time for complete cleaning of the machine before it became necessary to remove the mixture.

When the crust of dirt was removed, it was found that some of the machines needed more than a fresh coat of paint. There were parts that demanded replacement and adjustments to compensate for wear. Conditions which could have caused breakdowns, interruptions of production, and perhaps personal injuries, were caught and corrected.

The wood block floors also required attention. The crust of greasy grime was removed with hand tools, and floor machines with wire brushes and worn or damaged blocks were replaced.

Now the plant was ready for painting.

Proposed plans and color schemes seemed a bit daring to some of the more conservative, but the color advocates won out. Now, even the skeptics are proud of the plant's exciting, colorful appearance.

Ceilings were kept white for maximum light reflection.

Starting in the main plant production area, machine bases and other stationary parts were painted a rich green.

Then, all moving parts of machines, such as flywheels, were made bright yellow. The same color was used for trucks, cranes and other vehicles which move through the plant. Some safety parts, such as guards and rails, were also painted yellow.

Pillars and posts with fire hose stations or extinguishers were coated in brilliant red. Electrical parts, switch boxes, etc., were also painted red.

But the peak of imaginative color use is to be found in the tool room, where the company maintains tools essential to precision workmanship. To symbolize its importance in the scheme of operations, all tool room equipment was finished in gold lacquer with black trim. The gold lacquer is like that used on some of the fiftieth anniversary Cadillacs.

Throughout the plant many other items have been included in the master color plan. Even the wire mesh screen surrounding the tool room and other restricted areas were painted green or gold. Racks at machines and on wheels were finished in black. Similar color schemes were devised for practically every item in the plant.

All machines are now scheduled for periodic check-ups and refinishing.

Instruction and warning signs also received attention in the program. The company had always used signs freely, and McClelland felt that over-use was defeating their purpose. Many signs were discarded, and those selected were cleaned up or replaced and mounted in the most conspicuous locations.

Since the program began, a marked change has been noted in the attitude of the men toward their equipment. They make a real effort to keep the bright, new finish on their machines, and there is much less clutter throughout the plant. After-hours recently one operator was observed wiping down and polishing his machine with the same care he would have shown with his car.

When the plant renovation was nearly completed, a plant tour was organized for office employees. Subsequently a tour of the offices by production employees was organized. These tours brought about a noticeable improvement in employee relationships.

In some cases, office and factory employees who had talked to each other on the intercom for years had never met. Now office and factory have a more personal interest in each other and in the relationship of their work.

And they're all proud of the new look throughout the plant—particularly since they did it themselves.

"We're not through yet," McClelland reminds admiring visitors.

91,000 to Go

—*From page 21*

property damage amounted to $5,600,000,000.

A fourth of the deaths, 9,700, were from accidents in cities and towns with more than 2,500 population; three-fourths, 27,300, from accidents in rural areas and towns under 2,500 population.

There were approximately 7,800 pedestrian deaths, a decrease of 1 per cent from 1957; and 29,200 nonpedestrian deaths, a 5 per cent decrease.

Work Accidents

The 1958 death total for work accidents was approximately 13,300, or about 900 less than the 1957 total. Disabling injuries numbered 1,800,000. The death total, excluding agriculture, was about 10,000, of which 1,800 occurred in manufacturing industries. Total cost amounted to about $3,900,000,000.

In addition to the 13,300 workers killed while at work, 29,200 died from off-the-job accidents—a death total of 42,500. Workers injured in both kinds of accidents numbered about 4,100,000.

Home Accidents

Home accident deaths in 1958 totaled approximately 27,000, a decrease of 1,000 from the 1957 total. There were about 4,000,000 disabling injuries. Costs—including wage loss, medical expense and overhead costs of insurance—amounted to $900,000,000.

Falls caused nearly one-half of the deaths; burns, one-fifth; all other types, only one-third.

One-half of those killed were persons 65 years old and older. More than a fourth were children under 15 years. The remaining fifth were persons 15 to 64 years old.

Public Accidents

There were approximately 16,500 deaths in public non-motor-vehicle accidents during 1958, or 1,000 less than occurred in 1957. Disabling injuries numbered approximately 2,050,000, of which 50,000 were permanent impairments. Wage loss, medical expense and overhead costs of insurance amounted to $800,000,000.

Nontransport drownings and falls each resulted in one-fourth of the deaths. Transportation accidents, (rail, air, water, and other—not involving motor-vehicles) accounted for about one-fifth. All other types contributed about one-third of the death total.

Deaths were distributed by age about as follows: 65 years and older nearly one-third; 45-64 almost one-fifth; 25-44 one-sixth; 15-24 and 5-14 each one-seventh; children under 5 fewer than 10 per cent.

Airplane Accidents

In 1958 there were 114 passengers and 15 crew members killed in 4 accidents occurring in the domestic passenger-carrying operations of scheduled air carriers. The passenger death rate was 0.43 per 100,000,000 passenger miles, compared to 0.12 for 1957. Total deaths in all aviation accidents numbered about 1,350.

Railroad Accidents

In 1958 there were 62 passengers and 19 crew members killed in passenger train accidents. The passenger death rate was 0.27 per 100,000,000 passenger miles compared to 0.07 for 1957.

Total deaths in all-railroad accidents numbered 2,429 and injuries 19,225 according to the Interstate Commerce Commission. Comparisons to 1957 cannot be made due to changes in ICC reporting rules. Grade crossing deaths numbered 1,341 compared to 1,468 in 1957. Trespasser fatalities went down 4 per cent to 733.

Fire Losses

The 1958 estimate of fire losses in the United States was approximately $1,056,000,000, according to the National Board of Fire Underwriters, 3 per cent more than the comparable 1957 total.

CHANGES IN ACCIDENTAL DEATHS, 1957 to 1958

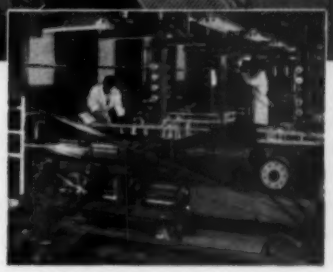
Type of Accident	Total Deaths	Deaths per 100,000 Persons	Change in rate from 1957
Motor Vehicle	37,000	21.4	— 6%
Falls	18,500	10.7	—12%
Burns	6,700	3.9	+ 5%
Drownings	6,400	3.7	— 5%
Railroad	2,500	1.4	— 7%
Firearms	2,400	1.4	0%
Poisons (except gas)	1,400	0.8	0%
Poisonous gas	1,250	0.7	0%

DEATHS AND DEATH RATES OF WORKERS BY MAJOR INDUSTRIES, 1958

Industry Group	Total Deaths	Deaths per 100,000 Workers	No. of Workers Per Death
Trade	1,200	9	10,650
Manufacturing	1,800	12	8,650
Public Utilities	200	14	7,350
Service	2,500	14	7,000
Transportation	1,200	44	2,300
Agriculture	3,300	57	1,750
Construction	2,400	74	1,350
Mining, quarrying, oil and gas wells	700	96	1,050

One Year's Test Proves Value of Pittsburgh Color Dynamics® in Hitemp Wire Plant

Modern painting system improves efficiency and morale so well it is used throughout specially designed new factory.



One year's test of Pittsburgh COLOR DYNAMICS proved so successful for Hitemp Wires, Inc., of Westbury, N. Y., that this modern system of painting has been used throughout its new 43,000 sq. ft. structure.

● **Hitemp Wires, Inc.,** has grown within seven years into one of the leading manufacturers of high temperature insulated wires and cables. Its products are sold to leading manufacturers of missiles, aircraft and electronic equipment.

● **How COLOR DYNAMICS has helped** to improve efficiency and morale in the Hitemp plant is best told in the words of George F. Rolfe, president: "About a year ago, our rapid growth required the leasing of temporary space. This presented an opportunity to try COLOR DYNAMICS. The results in efficiency, morale and safety for our workers proved so successful, we decided to adopt this painting system as standard throughout our new plant which was especially designed for our kind of production.

● **"Walls, ceilings and every piece** of machinery and equipment were painted according to this system. Moving into this new, efficiently designed structure has improved both volume and quality. While we believe the new facilities have contributed to this betterment, COLOR DYNAMICS has also proved to be an important factor.

● **"COLOR DYNAMICS** has made our new plant more pleasing to the eye, as well as aiding efficiency and morale. It has encouraged good housekeeping and cleanliness, a serious problem in our kind of plant because of the variety of miscellaneous small items used in processing wires and cables. We can heartily recommend this system of painting to industry as a key to improving efficiency, morale and general working conditions."

● **Why not test** the practical value of COLOR DYNAMICS in your plant? Try it on a machine or two, or in a complete department—and see the difference it makes.

Get This FREE Color Plan for Your Plant

● For a complete explanation of the way COLOR DYNAMICS can make your plant more efficient and safer, send for our free, comprehensively illustrated booklet. It tells you how to put color to work for best results. Better still, we'll gladly make a complete color study of your plant or any part of it without cost or obligation. Call your nearest Pittsburgh Plate Glass Company branch. Or mail this coupon.

Send for a Copy of this FREE Book

Pittsburgh Plate Glass Co., Paint Div., Department RSN-98, Pittsburgh 22, Pa.

☐ Please send me a FREE copy of your booklet "COLOR DYNAMICS."

☐ Please have your representative call for a COLOR DYNAMICS survey without obligation on our part.

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HELP US KEEP THE THINGS WORTH KEEPING

A boy keeps days like these all his life. Some day he'll trundle his own sons in a barrow too—remembering the jolly, peaceful man-to-man times spent with his father.

So many precious things like this depend on peace. And *peace* depends upon so many things. For instance: peace costs money.

Money for strength to keep the peace. Money for science and education to help make peace lasting. And money saved by individuals to keep our economy sound.

Every U. S. Savings Bond you buy helps provide money for our country's Peace Power—the power that helps us keep the things worth keeping.

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HELP STRENGTHEN AMERICA'S PEACE POWER

Photograph by Harold Halma

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Safe Construction Jobs Are Planned

But establishing a good safety record takes more than a paper program

WHY DOES one construction job, preceded by conferences "leaving nothing to chance," result in a frequency rate of 101-and-still-rising the first month?

And why does another job, run by maverick contractors ripping the side off a mountain under primitive conditions, end up showing a profit and a zero-zero-minus frequency rate?

For one thing, the mavericks had *organization*, instead of an accumulation of ideas so complex or foreign to normal work procedures as to fail before starting. Another vital link is *experience*.

Organization shouldn't be too difficult, if we place everything in its proper order and try not to forget anything. But, as in the past, we overload the program with futile rubbish. A good deal of trash removal is necessary.

First, visualize the person who should have responsibility for completing this project. Then, find the man—possibly the job superintendent or his assistant—with sufficient know-how and aptitude to accept such a responsibility.

Next, itemize what must be done, who will do it, and follow-up procedures. This list of questions could be helpful:

1. How many workers will be employed (maximum) on the job?
2. What is the name and address of your compensation insurance carrier?
3. Will the insurance company furnish safety engineering service?
4. Is a registered nurse to be available on the project?
5. What is the name and address of a doctor for full- or part-time services?

By JAMES L. COX
Safety Engineer, U.S. Army Engineer District, Philadelphia.

TRAINED MEN and safe equipment protect life and property. Here U. S. Engineers place 104 ft. steel beam in a high level highway bridge, across the Chesapeake and Delaware Canal.

PARTIALLY COMPLETED control tower for 3000-ft. long Bear Creek Dam being built across the Lehigh River near White Haven, Pa.

6. Will pre-employment physical examinations be given?
7. Will an infirmary be provided at the job site?
8. Will supplementary first-aid stations be provided?
9. What toilet facilities will be provided or used?
10. What is the location of the hospital nearest the project site?
11. Is 24-hour ambulance service available? What is the name of the agency furnishing such service?
12. What is the source of available drinking water?
13. What type of water dispensing equipment is to be used?
14. What protective equipment is to be made available to all workers?
15. Who is responsible at the site for preparation of accident report forms?
16. What is the schedule of safety meetings? Who will be required to attend?
17. What will be the frequency of safety meetings?
18. Who will conduct safety meetings?
19. Which supervisors will be delegated authority and responsibility for enforcing or acting on safety regulations?
20. What is the name of the agency certifying pressure vessels, steam boilers, air reservoirs, etc.?
21. Will explosives be used? What method will be used to move them, and what will be the method and location of their storage? What is the name and number of the licensed operator in charge of loading and detonation?
22. Fire prevention:
    a. What is the nature of the water supply?
    b. What types of extinguishers will be provided?
    c. Will a night watchman be employed?
    d. Where is the nearest available fire-fighting unit?
23. Motor vehicle and equipment operation:
    a. What method will be used for issuing operating permits?
    b. What will be the frequency of vehicle inspection?
    c. Where will vehicle inspection records be filed?
    d. What are proposed fueling methods, tanks and containers and proposed location of tanks relative to other buildings?
    e. What arrangements are to be made for traffic regulation at the site?

Next, assemble key personnel of the contractor and his subcontractors, labor organization representatives, and engineering personnel to be employed on the project. Review and evaluate major problems emphasizing special hazards of the job.

Particular weight should be placed on the methods the prime contractor will use to control and coordinate the work of subcontractors, plan for layout of temporary buildings, storage areas, traffic control, and haul roads.

Most important, keep a record of proceedings, including all final understandings reached as to delegation of duties, dates, and corrective action.

Jumping back to *experience*, where can we find it? In the diary of a crackerjack construction engineer or the fading memories of an old-timer? Close, but not on target!

—To page 128

ENGINEERS are amphibious. Seagoing hopper dredge Comber (right) lowers snorkel into bins of sump rehandler New Orleans as she prepares to discharge a load of material dredged from Delaware River.

WILLSON'S NEW ONE-BRIDGE-SIZE MONOSPEC

fits 95 out of 100 faces

Slashes 3 major costs of eye protection

The real cost of eye protection is man-hours, don't you agree?

People away from the job for fittings . . . lost time for replacing broken or lost spectacles . . . delays in outfitting new employees . . . ordering, stocking, and keeping records. The cost per worker easily can add up to *three times* the purchase price of spectacles.

Willson's new MONOSPEC saves man-hours. The patented bridge, with integral contoured nose pads, fits 95% of all faces. It's *human engineered* to the average worker—just like your production tools have to be.

MONOSPEC's unique "universal" bridge brings new functional advantages, too. There are no sharp corners, no pivots to break, nothing to corrode—contoured shape increases strength. Large contact area distributes the weight evenly, makes spectacles feel lighter and more comfortable.

Here's a practical idea for your program—safety *with savings,* plus Willson quality. Available in 2 lens sizes—F46 and F48. Spatula-style temples are standard. Also available with plastic-cable temples.

Phone your safety equipment distributor for a demonstration . . . and see how MONOSPEC reduces the number of *hard-to-fit* people in your plant.

WILLSON®

Willson Products Division, Ray-O-Vac Company, Reading, Pa.

Canada: Safety Supply Co., Toronto, Ontario

Circle Item No. 27—Reader Service Card

RECORD AND REMINDER. This sign on the ship's bridge is a constant reminder of its safety achievement and helps to keep the crew alert. Left to right are: Chief Mate Thomas Brigham, Second Mate Harry Pearce, Capt. Erich Richter, Jr., and Glenn Ankrum, marine safety supervisor for Tidewater Oil Company.

FALLING HAZARD reduced. John Yaccarino, saloon messman, explains the intermediate step from the chillbox to the storeroom which he devised. Many safety devices on Tidewater ships have been suggested by crew members.

Safety and Seamanship

This training program makes them synonymous in Tidewater's fleet

SIXTY-ONE PER CENT reduction in accident frequency in three years is saving dollars and raising morale for members of Tidewater Oil Company's eastern division Flying A fleet. Keystone of this progress is a dynamic safety education program.

By JOHN H. G. BOER
Safety Supervisor, Eastern Division, Tidewater Oil Company.

During the past year, the frequency rate was 12.1 disabling injuries per 1,000,000 man-hours worked. The severity rate developed from the 593 days actually lost in 1958, using American Standards Association scoring, was 1,206—a reduction of 36 per cent less than the 1955 rate.

The remarkable success of this safety program is due in large measure to the objectives set at its inception in February, 1956.

Its first aim was the reduction of human suffering brought about by accidents—the vast majority of which are avoidable. The other objectives followed in close order: improved morale, a reduction of nonproductive expense, better customer service with fewer schedule interruptions, and an improved public reputation for the firm.

The initial step in the program involved the training of safety personnel to present basic accident factors to supervisors at scheduled training sessions. The basis of these sessions was the "Accident Sequence," as analyzed by H. W. Heinrich, noted safety authority.

Included in this training were

One slip can cost more than USS Multigrip...

What percentage of occupational accidents is caused by falls? In one state, falls were responsible for 17 per cent of all injuries, 33 per cent of the days lost and 23 per cent of the direct cost. (From National Safety News, February, 1959.) Falls ranked No. 1 as the cause of most accidents.

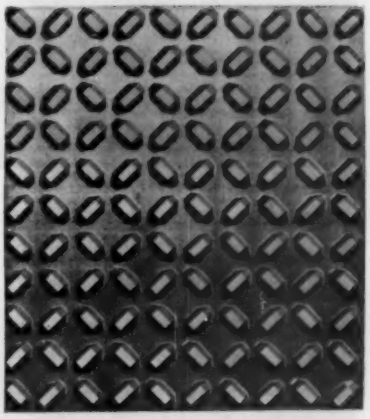
Fortunately, you can do something to prevent falls by installing USS Multigrip. Multigrip floor plate provides safe traction in any direction. It is studded with little cleats that are flat on top and do not catch the shoe.

For dangerous locations such as machine shops, loading platforms, stair treads and catwalks, USS Multigrip supplies safety plus.

Saves money, too! Where floors take a pounding from heavy traffic, Multigrip will stand for years under constant use. There's little or no maintenance.

On your next inspection trip, search out the hazardous locations—and make them safe with USS Multigrip.

USS is a registered trademark



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United States Steel

EMERGENCIES may arise at any time and equipment must be ready. Here Chief Mate Brigham and Second Mate Pearce check inhalator equipment.

identification of unsafe acts and conditions, logical steps to be taken to correct unsafe conditions, and effective accident investigation and reporting. Emphasis centered on finding out *what* caused the accident rather than *who* caused it.

All licensed personnel, stewards, and boatswains received instructions in five one-hour sessions. These presentations, made with the help of visual aids, emphasized the supervisor is responsible for the safety of men in his charge.

To assist the officers, a shortened version of the presentation informed unlicensed personnel in two one-hour sessions. In these meetings trainees gained an understanding of the accident sequence and the ability to recognize and identify unsafe acts and conditions.

This has stimulated interest in safe shipboard practices and has developed an appreciation of the safety responsibilities of their supervisors, with whom they can now speak the same safety language.

After training sessions, safety committees were set up on board ships, using a system of membership rotation so participation is not lim-

—To page 128

HOW TO STRAIN A BACK. Glenn Ankrum conducts a safety session for supervisors using dummy to illustrate effect of improper lifting methods on the back.

AWARD PRESENTED. Vice-president J. G. Jimenez, general manager of Tidewater's eastern division, presents plaque in recognition of a year's operation without a disabling injury by the *S. S. Flying A New York*. Accepting the award is Capt. Ralph K. Donahue, recently retired as master of the vessel. Taking part in the ceremonies, left to right, are: H. F. Tomfohrde, transportation manager; Glenn Ankrum; Donahue; Gen. J. James Ashton, manager, Delaware Safety Council; Jimenez; C. T. Foster, Jr., president of the Council; and Frank O. Braynard, director of information, American Merchant Marine Institute.

BUREAU OF MINES

APPROVED!

Globe Guardsman Air Mask receives Bureau of Mines approval No. 13D-11

The Globe Air Guardsman, has been issued approval for safety, practicality and efficiency in general service. The same high standard of quality found in the Globe Guardsman air mask is built into every piece of Globe resuscitation and breathing equipment.

All Globe breathing protection equipment is now available with the Acme Full-Vision Mask

COMING TO THE NATIONAL SAFETY CONGRESS OCTOBER 19, BOOTH 315

GLOBE SHORT-SNORTER

. . . A new concept in breathing safety with 66 models available to exactly meet your breathing protection problems.

GLOBE M/M MOUTH-TO-MASK RESUSCITATOR

The revolutionary **Globe M/M Mouth-to-Mask Resuscitator** . . . an extension of the newly approved mouth-to-mouth technique without the objection of intimate contact. In just a few short months, thousands of M/M mouth-to-mask resuscitators have been utilized by industrial plants, rescue squads, fire and police departments, YMCA's, chemical and utility companies.

GLOBE RESUSCITATION AND BREATHING EQUIPMENT

For complete information on any Globe resuscitation and breathing protection equipment, write to
Medical and Hospital Dept., Globe Industries, Inc.
125 Sunrise Place, Dayton 7, Ohio

A few choice territories still available for qualified industrial safety specialists.

Circle Item No. 28—Reader Service Card

CRANE BOOM protector is a cage-like framework of steel supported above and to the sides of the boom by heavy-duty insulators. Field and laboratory tests have subjected the device to more than 50,000 volts without leakage. (SAF-T-BOOM)

Crane Booms vs. Power Lines

Contacts are dangerous . . . but preventable

THE NETWORK of electric power lines lacing this country adds up to tremendous mileage. The number of cranes and power shovels used in industry is also enormous. And when we have boom equipment operating in plants and on construction jobs with power lines overhead, we have a hazard. Progress in prevention has not kept pace with the growth of either the construction or the electrical utilities industries.

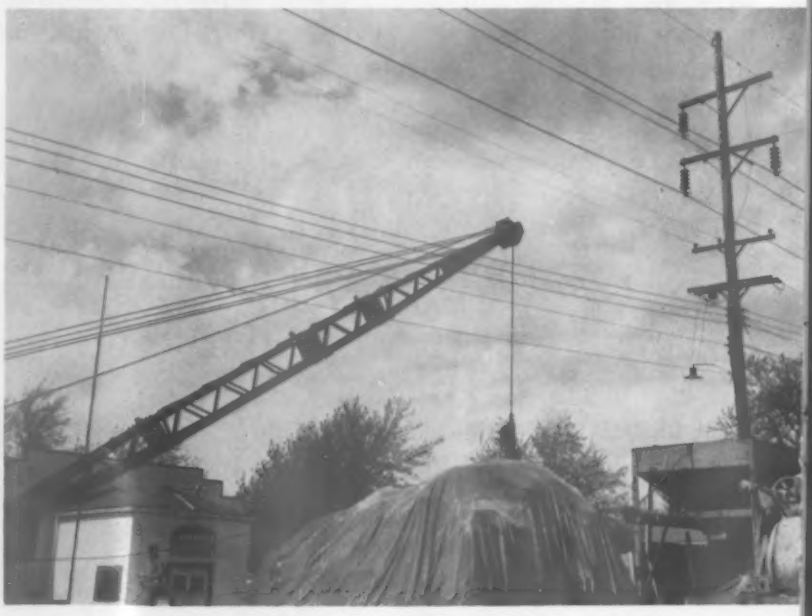
Each year, many deaths and serious injuries and much property damage result from crane boom contacts with power lines. In a nine-year period California reported 160 fatalities and 300 injuries due to crane boom contacts. Statistics show that death results in one out of every three injuries caused by accidental contact with high-voltage lines.

The electrical nature of the problem suggests that safety groups in the electrical industry should assume leadership in any safety drive reaching across industry lines. Officials of the crane operators' union have offered cooperation, and help from the construction industry and insurance groups is anticipated.

The utility industry's stake in reducing crane contact accidents is a major one. In addition to the personal hazard, cranes cause extensive damage to lines and serious interruptions to service.

Equipment involved. While this study is concerned mostly with cranes, many other types of equipment are subject to the same hazards. Draglines and power shovels are modified forms of crane rigs. Then there are drill rigs, pile drivers, and rigs for driving and pulling

LUCK was with the crew on this job. Neither the foreman nor the crane operator knew the wires carried high voltages.



By SAM S. ELKINS
Chief, Safety Branch, Southwest Division, Corps of Engineers, U. S. Army, Dallas, Tex.

two WINTER LINERS for the price of one

As safety men, abreast of the market, you know that this year it's easy to find Winter Liners selling at lower prices than those made by Bullard. Chances are you expected us to offer a competitive line of cheap liners. The fact is, we've done just the opposite. This new line of dark green Bullard Winter Liners is actually better and more costly to produce. The fine quality of each detail in their fabrication is assurance your Winter Liner investment is protected . . . that you'll get at least double the life from Bullard Liners. Examine one closely. Every seam is lock stitched . . . they can't unravel. All outside fabrics are extra heavy water repellent drill . . . lined with pre-shrunk, flame resistant fleece.

This is why when matched against any price competition we can say with certainty that Bullard gives you two Winter Liners for the price of one.

#70-EL-33 #70-EL-50 #70-WL-1K #70-WL-2K

DRILL WINTER LINERS

Made from water repellent drill that is wind and fire resistant, these liners have extended backs to protect wearers' necks. All fittings are plastic including snaps and straps. #70-EL-33 fastens with tie cords and #70-EL-50 with elastic chin strap that has plastic hook and eye.

KNIT WINTER LINERS

Knit liners fit snugly over the head. #70-WL-1K protects neck and ears. #70-WL-2K is an extra light weight liner. Both manufactured from dark green stretch-on nylon fabric.

Write for price lists **E. D. BULLARD COMPANY**
SAUSALITO, CALIFORNIA

BULLARD
INDUSTRIAL SAFETY EQUIPMENT

Circle Item No. 29—Reader Service Card

sheeting. They all extend upward and outward in a manner which makes them liable to contact with power lines.

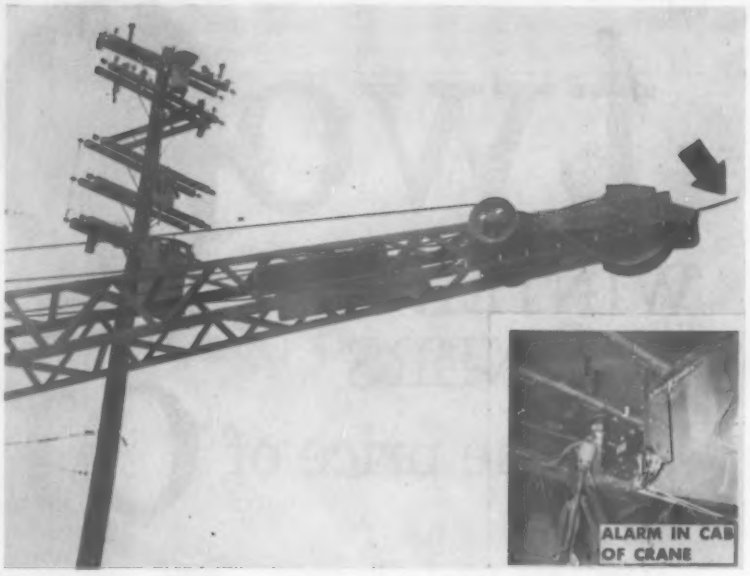
Some types of fruit loaders and hayloaders do the same thing. Mounting of equipment varies with the work to be done. It may be mounted on steel tracks, on truck mountings, on trailer bases, and on stationary bases.

Hazards. Crane boom contacts may result in serious or fatal injuries, equipment damage, and in other property damage due to resulting power failures. Should a boom line or load line come in contact with a power line, the cables should be inspected, and the burned section and several feet of cable on each side should be cut out.

The electric line should also be inspected and members replaced where damage is suspected.

Operators and groundmen. Operators of boom equipment are sel-

—*To page 118*



ALARM warns crane operator of proximity of high-voltage lines. Inset shows alarm mounted in crane cab. It can be set for any working distance. Electronic circuits monitor device and sound warnings when boom gets in danger zone. (Electro-Alarm Safety Devices)

CRANE BOOM CONTACTS — WHERE AND HOW

Analysis of California and Florida accidents for 1956 covering crane boom contacts with power lines

Case Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1. Location of Accident																						
a. On machine					x	x	x		x	x		x										
b. Near	x	x	x	x				x			x		x	x	x	x	x	x	x	x	x	x
2. Due to Unsafe Practice of:																						
a. Operator	x		x	x	x	x	x	x	x		x		x			x	x	x	x	x		x
b. Groundman		x								x		x		x	x							
3. Type of Equipment																						
a. Crane	x		x	x	x		x	x			x	x	x			x		x		x	x	x
b. Pile driver		x																				
c. Rig for driving and pulling sheeting																						
d. Dragline														x	x		x		x			
e. Drill rig									x	x												
f. Power shovel																						
g. Mobile tower w/tree training platform						x																
4. Mounted on:																						
a. Steel tracks	x			x										x	x		x		x			
b. Truck			x			x	x	x			x	x	x									
c. Stationary																						
d. Trailer																						
5. Equipment Failure Broken hoist—cable struck power line																					x	
6. Injury Occurred While:																						
a. Pulling load cable		x	x	x										x	x							
b. Guiding load	x							x								x		x	x			x
c. Working around machine					x	x	x		x	x	x	x	x				x			x	x	

DOW | **HERBICIDES**

Fences won't lock out weeds, grasses . . . or fire!

Plant protection begins outside—with **GARLON**

Premises harboring weeds and unwanted grass present a fire hazard (an open invitation to higher protection rates), and give the public an unsightly picture of your buildings and grounds. They hasten the corrosion of security fences, stored equipment, piled commodities . . . provide hiding places for lost tools and rodents . . . provide a spot where preventable accidents can occur.

Cutting is costly, and an almost continuous job. You can stretch your budget and put manpower to better use when you control vegetation chemically . . . with Garlon!

Professional contractors prefer and use Garlon*, the double-duty herbicide that kills both broad-leaf weeds and nuisance grasses at the same time. And unlike high-priced "soil sterilants" that require expert application to be effective, low-cost Garlon is so easy to mix and apply, that your own men can do a professional job.

Garlon kills unwanted vegetation from the top leaves to the deepest roots without depending on rainfall to wash it down. One application and a spot retreatment usually last a full season . . . or longer!

Mail the coupon below for more information and/or the name of a qualified professional contractor near you. Or call your nearest Dow Sales Office. There's one in nearly every major city.

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Circle Item No. 30—Reader Service Card

How to make

Effective Company Inspections

Practical suggestions on inspection techniques and follow-up

TO SET the stage for this discussion of inspections, let me relate three incidents that occurred because someone failed to make effective safety inspections of work places.

Incident No. 1. Picture these two mechanics inside a large storage tank. Their clothing is ablaze and they are slapping frantically at the flames and scrambling toward the manhole in an effort to escape. They will be disabled for a long time. The cause: Oxygen leaking from another tank into this one created a hazardous atmosphere.

Incident No. 2. A machinist is grinding a tool. Suddenly, the grinding wheel, running at normal high speed, shatters and destroys the sight of his unprotected right eye. There was no guard around the wheel. The machinist was not wearing eye protection, and the wheel was evidently defective.

Incident No. 3. A punch press operator is shocked by the numbness and sight of the bloody stumps of the index and middle fingers just amputated in the press. It had double-tripped because of a faulty tripping mechanism.

These, and thousands of other accidents, could have been prevented if work places had been inspected thoroughly at regular intervals by competent inspectors.

How shall we define effective inspections?

Let us start with the noun. It means to look upon, view closely and critically, especially to ascertain quality or condition so as to detect errors.

Suppose we follow this definition and look at a machine closely and critically. We find a guard missing from the gear train. Is this an effective inspection?

Not necessarily. What we do about it afterward will determine whether it is effective or not. Replacing the guard will correct only part of what is wrong. More important is to find out why the guard was left off the machine and to teach workmen that the guard was put on the machine to protect them and should always be in place when the machine is running. Without such explanations teaching is not really effective.

The Four Questions

Once we understand the need for safety inspections and what an effective inspection is, four questions must be answered:

1. Who will inspect?
2. Where to inspect?
3. What to look for?
4. When to inspect?

Who will inspect will depend largely on the size of the organization and the amount of time required to inspect all areas where hazards could exist. Inspectors will come from the following:

1. Managers, supervisors, foremen.
2. Workmen.
3. Safety supervisors, safety engineers.
4. Specialists—industrial hygienists, boiler inspectors, elevator inspectors, etc. They may be full-time employees or engaged on contract for specific inspections.

Let us consider company people and see how they fit into the inspection picture. The manager or superintendent has a big stake in the safety of his employees as well as in production rates. It stands to reason that he should be interested in knowing working conditions. If it is a small plant he will, being aware of his responsibility, make many visits to the floor to see how things are progressing.

Some of this work may be delegated to the shop foreman. The foreman's attitudes toward safety are shaped largely by the manager's leadership. A good manager demonstrates his belief in safety by making periodic trips through the plant to discover unsafe practices. A foreman who knows the boss will do this, will be inclined to make inspections and take steps to correct unsafe conditions and unsafe acts before he is called on the carpet. This same principle applies in larger plants where the main difference is in the number of foremen and workers.

Whatever the size of the plant, the policy to maintain a safe working atmosphere must be set up and kept alive by the manager. Even in plants that are part of a multiplant company, the manager sets the tone for the safety program. He may be goaded into action by past and anticipated inspection trips by district or regional managers or officers of the company, but the safety program depends upon his personal feelings toward safety.

Men who work at machines or perform the various other jobs in a plant can make a large contribution to safety. Without their help, safety can be destroyed. A highly effective way to gain their support of the program is to get them actively engaged in making safety inspections. Often the varied skills and experiences of these people will enable them to discover things the foreman, the manager, or special inspectors may overlook. They live with plant conditions and see the actions of fellow workers every day.

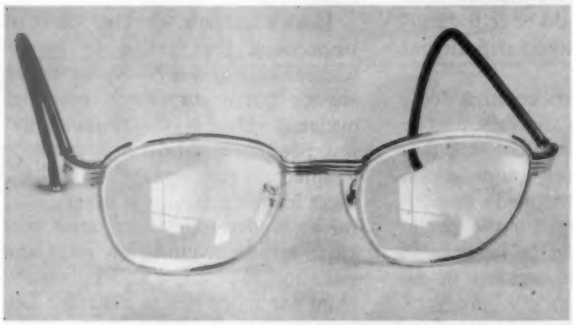
By GORDON B. GRAHAM
Safety Engineer, Linde Company, Division of Union Carbide Corporation, New York. Condensed from a paper presented at the 29th Annual Safety Convention, Greater New York Safety Council.

**PROTECTION PLUS*
by BAUSCH & LOMB**

Wire mesh side shield has fine screen to stop particles and give ample air flow.

Insulated wire mesh side shield with heat-resistant covering. Non-corroding.

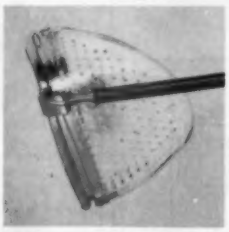
NEW M-70 Metal Frame Safety Glasses



M-70 The basic B&L metal frame safety glass.

P-71 The M-70 with wire mesh side shields.

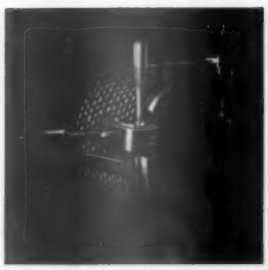
Side shield of solid acetate stops passage of liquids and dust. In clear or green.



Perforated acetate side shield provides protection plus comfort. In clear or green.

Job-Tailored!

Fitting the protection to the hazard is half the battle. Now you do it easily and swiftly in your own department with a single basic front and a selection of side shields. M-70 combines the sturdiest metal construction with distinctive styling and new Bal-SAFE S-7 lens shape. Another striking example of the economy of Bausch & Lomb quality. Write for Catalog Folder A-1800: Bausch & Lomb Optical Co., 90345 Smith Street, Rochester 2, New York.



Ingenious expansion end piece does the trick . . . allows easy assembly and disassembly of side shields without changing fronts or temples.

BAUSCH & LOMB

*Protection PLUS Safety Products
protection + economy + worker acceptance

Circle Item No. 31—Reader Service Card

There may be some truth in the saying "Familiarity breeds contempt." However, I contend that no matter who they are, people who are really taught to recognize unsafe conditions and unsafe acts cannot be completely indifferent to them. But, to make effective use of the skills already possessed by workmen they must be taught the additional skills required to make inspections. When such people are properly trained, they may be relied upon to inspect for the conditions that are known to have caused accidents.

Training of inspectors need not be complicated. Indeed, it should be simplified to the point that it becomes understandable by nontechnical people. The foundation of any teaching is, of course, the body of information that is to be taught. I do not know of a better place to start to teach people to make inspections than to describe and show what went wrong to cause the accidents that have occurred in the plant, or in other plants where similar working conditions prevail. Enough of this information must be given to each newly appointed safety inspector so he will know where to look and what to look for.

Safety inspectors are usually appointed to serve on the safety committee for short periods of time on a rotating schedule. A workable scheme is to stagger appointments to the safety committee. The new man can in this way learn the routines from the men with more inspection experience.

Check lists. To assure the inspection of all items that need attention by employee-inspectors I suggest the use of safety check lists. Such lists should be tailored to the specific needs of plants or departments. There are general safety inspection lists, which are suggested for use in many plants and in many industries. Some insurance companies supply general inspection lists and require their customers to fill one out every week. Answering the generalized questions on the inspection list seems to be necessary in order to keep insurance premiums from being increased. It is highly practical to meet this requirement.

However, many items may be overlooked in an inspection when using these general lists. They necessarily show items that are only generally applicable in every plant. Also, they do not include specific items of inspection that should be included in a complete inspection. For this reason I recommend that inspection lists should be individualized plant by plant and department by department.

Large plants, or comparatively small plants where the exposure to potential hazards is high, may engage full-time safety supervisors. These men are often made responsible to management for the detection and elimination of hazards as well as for the supervision of an active personnel safety program. They are expected to examine work places, machines, tools, and the working habits of employees.

While this is a natural part of the work they perform, the wise safety engineer or safety supervisor will encourage the manager, the foreman, and employees to make regular periodic safety inspections. He will assist them, advise them, and participate in the training of the safety committee inspectors. He may be called upon to help in the development of procedures and schedules for regular maintenance inspections.

However, he should beware of any tendency to make the safety inspection a substitute for the regular plant inspection or scheduled maintenance inspections. Also, the latter types of inspections must not be substituted for safety inspections. Best results are obtained when safety inspections are made for safety only.

During a safety inspection certain items may be uncovered that belong in a general plant inspection list or in the maintenance inspection schedule. These should not be included in the safety inspection report but should be referred to the people who are responsible for these inspections for separate handling.

Health hazards. Certain kinds of inspections that relate to health hazards should not be attempted by anyone but a competent industrial hygienist. He has the training, the test equipment, and the experience to interpret test results. He will inspect for the presence of toxic gases, fumes, and dusts; make noise surveys; measure ventilation rates and radiation exposures; and police the plant for other health hazards. The industrial nurse may be called upon to assist in making these inspections.

The hiring of an industrial hygienist will be justified in large plants or in multi-plant companies where health hazards exist or recur at frequent intervals. Small plants will rely upon one of the consulting firms who make inspections on a contract basis.

Now that we have discussed who

—To page 126

BERT

A THOUSAND AND ONE
Complete Units and Combinations

That's what is available to you from Jackson Products' well integrated line of safety products, including head, face, and eye protection for welding and allied industries.

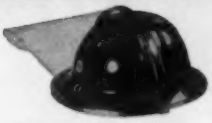
Life Guard hat SH-3, the all-purpose hat for construction and electrical uses.

Fiber Glass hat SH-1, meets the tests for construction workers' safety hats.

Alumihat SH-5 gives excellent protection, is light in weight.

ALL JACKSON SAFETY HATS combine with **FACE SHIELD TYPE 'F-1'**

Face Shield F-1, firmly held on Safety Hat SH-1 by elastic band.



Two pivoted aluminum frame members permit raising visor.

ALL JACKSON FACE SHIELD VISORS FIT FACE SHIELD 'F-1' (left) and 'MUSKETEER' (below)

Visors 1½ by 9" deep in clear plastic, tints of green.

Visor with welding lens (shown on Musketeer)

Visor 1½ by 9" deep of 24-mesh wire screen.

Face shield J-1 shows 6" clear visor.

Metal-bound visors type J-1, 11½" wide, 8", 6" and 4" deep; in clear plastic, .020", .030" and .040" thick, and in tints of green, .020" only.

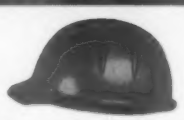
Life Guard Cap SC-3, like the SH-3 hat, is made in white, yellow and grey

Cap-and-helmet SCH-1P shows curved shell helmet on SC-2 safety cap.

Cap-and-Goggle shows goggle unit CW-70 pivoted on SC-2 safety cap.

Musketeer Assembly No. 82 on Life Guard Cap SC-4 shows 34-2 visor, medium green.

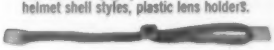
ALL JACKSON SAFETY CAPS combine with **WELDING HELMETS IN NINE TYPES** | with **GOGGLES IN FIVE TYPES** | with **'MUSKETEER' FACE SHIELD**



Fiber Glass Cap SC-1, like the SH-1 hat, is made in grey and seven other colors.

Alumicap SC-5, like the SH-5 hat, is made in satin-finished aluminum.

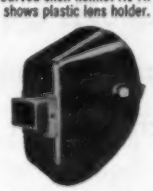
'Winterizers' (left) may be used with all Jackson products shown here. Arc welding handshields (right) are available in all helmet shell styles, plastic lens holders.



Chin Strap for Jackson safety hats and caps.

All three styles shown offer choice of three lens holders.

Curved shell helmet H1-AP shows plastic lens holder.



Narrow shell helmet H3-A shows metal lens holder.

Straight shell helmet H9-A shows plastic lift-front.

Supergoggles WR-70 for welding and GR-70 for grinding; elastic headbands.

Unigoggle W-60 for welding shows plastic headrest. WR-60 has elastic.

Goggles WR-50 for welding and GR-50 for grinding. Also in headrest types.

Musketeer Headgear Assembly 70-S shows Adjust-O-Lok, spark deflector, and clear visor No. 34-4, .040" thick.

Welding goggle type BX has plastic headrest and 2 by 4¼" filter lens.

Sold by Better Welding Supply and Safety Products Dealers

JACKSON PRODUCTS

AIR REDUCTION SALES COMPANY, A DIVISION OF AIR REDUCTION CO., INC.

31739 Mound Road, Warren, Michigan

Circle Item No. 32—Reader Service Card

for

DISTINGUISHED SERVICE

Winners of National Safety Council Awards for outstanding records

Certificate of Commendation

Acme Steel Co. (2): Canadian Plant, Toronto, Ontario; Racine, Wis., Plant.

Allegheny Ludlum Steel Corp., Carmet Div., Ferndale, Mich.

Allen Industries, Inc., Central Office, Detroit, Mich.

Allentown Portland Cement Co., Conshohocken, Pa.

Alpha Portland Cement Co. (3): Ironton, Ohio; Jamesville, N. Y.; Martins Creek, Pa.

American Brake Shoe (6); American Brakeblok, Headquarters, Troy, Mich.; American Manganese Steel, Chicago Heights, Ill.; Dominion Brake Shoe Co., Headquarters; Railroad Prod. Div., Buffalo, N. Y.; Railroad Prod. Div., Pomona, Calif.; Railroad Prod. Div., Superior, Wis.

American Can Co. (15): A. D. Engraving & Process Plate 9A, Brooklyn, N. Y.; Arlington, Tex., Plant 54A; Cent. Engrav. & Process Plate 81A, Chicago; Central Div., Lab 72A, Maywood, Ill.; Central Sorting 67A, Chicago; Dade City, Fla.; Halethorpe Factory, Baltimore, Md.; Hoopeston, Ill., 8A; Kahului, Hawaii, Plant; Ogden, Utah, 100A; Salem, Ore., Plant 102A; San Francisco, Calif., Lab 101A; San Francisco Process Plate 95A; Stockton, Calif., Factory 11DA; Sycamore Plant 57A, Blue Ash, Ohio.

American Marietta Co., Dragon Cement Co., Div., Thomaston, Maine.

American Rad. & Std. San. Corp., Plbg. & Htg. Div., Louisville, Ky.

American Standard Atomic Energy Div., Mt. View, Calif.

Amp. Inc. (3): Brodbeck, Pa.; Glen Rock, Pa., Engineering; Seven Valleys, Pa.

Arizona Portland Cement Co., Rillito, Ariz.

Armco Drainage & Metal Products Inc., Houston, Tex. Plant.

Ash Grove Lime & Portland Co., Chanute, Kan.

Ashland Oil & Refining Co. (3): Canton, Ohio, Refinery; River Repair Terminal, Catlettsburg, Ky.; Valvoline Refinery, Freedom, Pa.

Avco Mfg. Corp., Spencer Div., Williamsport, Pa.

Bemis Brothers Bag Co. (2): S. 11th St., Omaha, Neb.; Wichita Kan.

Borden Co. (3): Anniston, Ala., Branch, Ice Cream Dist.; Ice Cream Dist., Mobile, Ala.; Tallahassee, Fla.

Butler Brothers, Harrison Shop, Hibbing, Minn.

Celanese Corp. of America (4): Charlotte, N. C., Development Lab; Ind. Chem., Pampa, Tex.; Lanese Plant, Burlington, N. C.; Pt. Pleasant Plant, Gallipolis Ferry, W. Va.

Chrysler Corp. (4): Atlanta, Ga., Parts Plant; Kansas City, Kan., Parts Plant; San Leandro, Calif., Parts Plant; Tank Engine Plant, New Orleans, La.

Conroe Creosoting Co., Conroe, Tex.

Consolidated Cement Corp., Quarry, Paulding, Ohio.

Container Corp. of America (8): Baltimore, Md.; Boyle Avenue Plant, Los Angeles; Chattanooga, Tenn.; Folding Carton Div., Renton, Wash.; Muskogee, Okla.; Oakland, Calif., Plant; Philadelphia; Sefton Can Co., Oakland, Calif.

Continental Can Co., Inc., Robert Gair Paper Products, Richmond, Va.

Crystal Ice & Cold Storage Co., Production, Sacramento, Calif.

Davison Chemical Co., Div. of W. R. Grace & Co. (4): Columbus, Ohio; Fidlay, Ohio; Nashville, Tenn.; New Albany, Ind.

Dixie Cup Co., Canada, Ltd., Brampton, Ontario.

Dominion Tar & Chem Co. Ltd., Javex Co. Ltd., Winnipeg, Plant.

Douglas Mining Co., Douglas Mine, Hibbing, Minn.

Dow Chemical Co., Seal Beach, Calif.

Erie Mining Co., Maintenance, Hoyt Lakes, Minn.

Firestone Tire & Rubber Co. (6): Akron, Ohio, Synthetic Rub. Plant;

—To page 137

DESCRIPTION OF AWARDS

Four types of awards are given by the National Safety Council to members in recognition of outstanding achievement in accident prevention

1. Award of Honor

Available to (a) units which complete 3,000,000 man-hours without a disabling injury, and (b) units whose records, though not perfect, meet exacting standards. These standards take into account the previous experience of the unit as well as the experience of the industry in which it operates. A unit must qualify on both frequency and severity rates.

2. Award of Merit

Has similar but less exacting requirements. Minimum number of man-hours is 1,000,000.

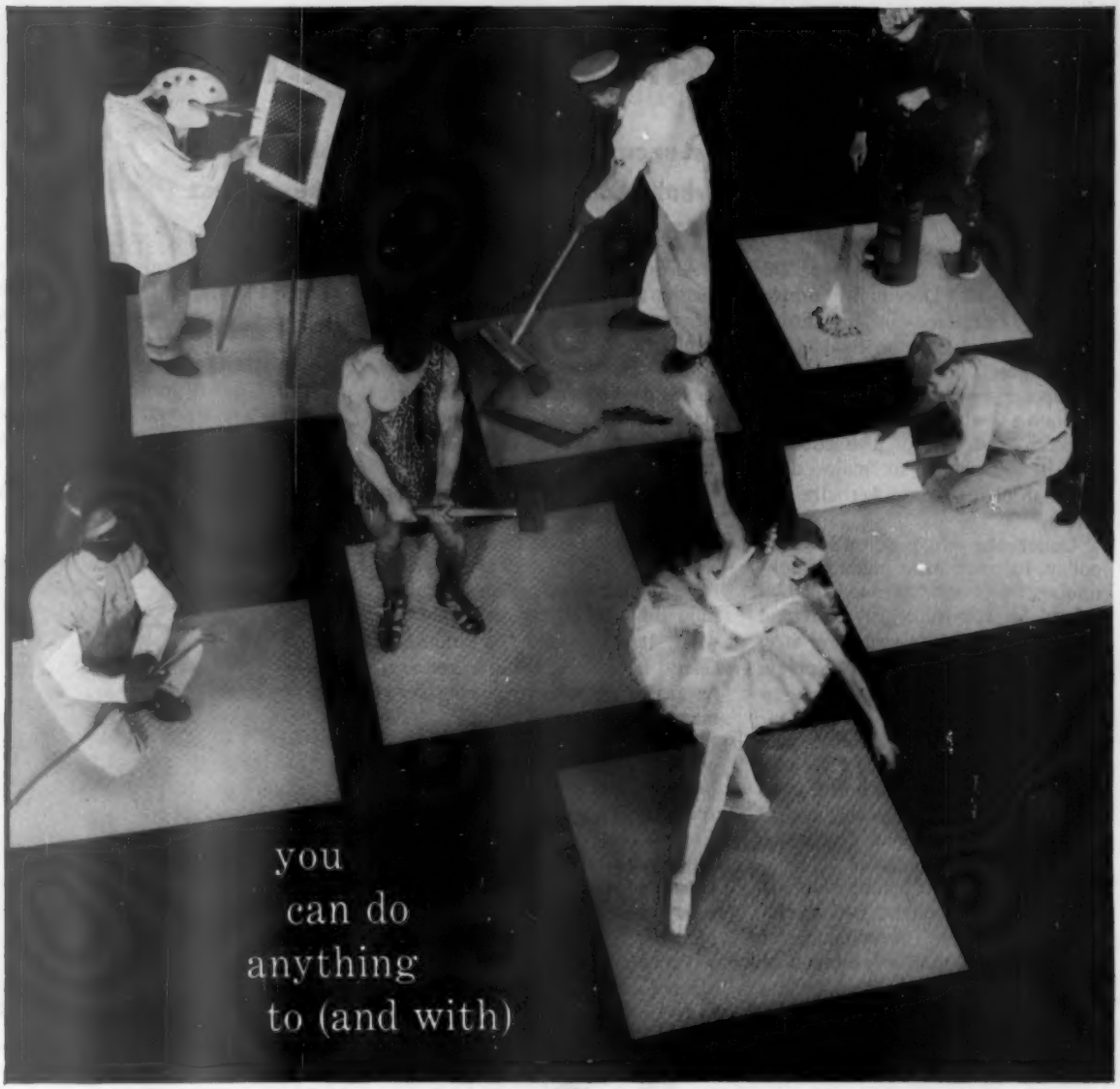
3. Certificate of Commendation

For injury-free records covering one or more calendar years and totaling 200,000 to 1,000,000 man-hours.

4. President's Letter

For injury-free records covering one or more calendar years and totaling less than 200,000 man-hours.

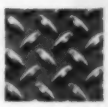
Details of eligibility requirements may be obtained by writing to Statistics Division, National Safety Council.



INLAND 4-WAY* SAFETY PLATE

As you can see, 4-WAY SAFETY PLATE is fireproof, can be bent, welded, hammered, painted. It can be cleaned with ease, can be cut, sheared, shaped to any curve or angle, drilled or punched. An outstanding feature of 4-WAY is its *slip-proof* character, as shown by the dancer. On catwalks, stair treads, truck beds, shop floors it provides positive traction, reduces hazards, safeguards employees.

Maintenance is extremely easy, fabrication and installation is simple. In many cases, no special skills are required—standard shop tools are all you need. On the floor, on the wall, on your machinery or your rolling stock, 4-WAY SAFETY PLATE is durable, attractive and economical. 4-WAY SAFETY PLATE is available from your Steel Service Center in Large Pattern—gages $\frac{1}{16}$" to $\frac{3}{4}$", Medium Pattern—gages 16 to $\frac{1}{4}$" and Small Pattern in 18 gage.



INLAND STEEL COMPANY

30 West Monroe Street • Chicago 3, Illinois

*Registered Trademark

Circle Item No. 33—Reader Service Card

Speaking for Safety

A bilingual contest uncovered some promising orators and stimulated the whole company's interest in the subject

ONE DAY several months ago 800 employees of Dominion Bridge Company gathered in the firm's Montreal plant for the finals in a safety speech contest.

Top brass sat in the audience as spectators, while six hourly-rated workers—the best of 196 contestants in the plant's six major divisions—fought it out verbally for prizes.

Under the organization's safety policy, foremen must maintain continuous emphasis on departmental safety. So Joe McBrierty, foreman of one of the firm's structural steel fabricating shops, decided to give a new twist to the safety-talk gimmick.

He lined up 22 contenders with a yen and aptitude for speaking on safety. These expanded into a competing group that involved one of every seven workers on the payroll in the two-month contest.

Meetings, already limited to 10 minutes each, covered five weekly sessions. Using a PA system, each man had two to three minutes to talk before fellow workers.

Also at this time the plant safety steering committee sought an idea for the annual no-accident-month campaign. McBrierty's safety speech project was tailor-made, not only for his department but for the entire plant. The contest grew, including another of the firm's Montreal branches.

Departmental winners were chosen, then divisional semi-finalists, and eventually the six finalists. Rules were few, mainly concerning eligibility, subject matter, and speaking time limits. Contestants could say what they pleased on industrial safety, health, or welfare, and in a few cases on what they considered management's shortcomings.

Quebec (and Montreal) being chiefly French-Canadian, bilingual judges were on hand to evaluate speeches delivered in French or English. Among these judges were representatives of the provincial accident prevention association and safety officials of other large local industries.

Prizes included safety boots, glasses, and gloves for departmental winners. The grand champion received a portable TV set. The five runners-up, and divisional titlists were awarded portable power drill kits.

The contest proved effective in boosting morale and reducing plant accidents. And no previous safety campaign had succeeded in generating such interdepartmental safety rivalry, not only among workers but between their foremen.

NOT ALL contestants were as impassioned as this one but the speeches were of a remarkably high standard, both in composition and delivery.

FINALISTS in the safety speech contest with their prizes. In the group, left to right, are an expediter, a material checker, a repairman (grand prize winner), a locomotive driver, a machine shop layout man, and an oxyacetylene burner.

Accidentwise, an average of less than one disabling injury per month for the six months since the contest compares creditably with the 2.5-per-month average recorded during the previous nine months.

One footnote warrants mention. Company officials feel much of the success and enthusiastic worker participation was due to conditioning —the result of active safety promotional efforts during many previous years, the product of a sustained safety program.

Keeping Tab on Accidents

Machines compile important data and make it readily available

DO YOUR safety records readily provide you with all answers necessary to conduct and maintain an effective safety program?

At Allis-Chalmers West Allis Works, with a payroll of 15,000 employees, a system using electric accounting machines has been used to compile and record industrial injury information for the past three years. Resulting data has made possible more precise planning of training programs, direct inspection efforts, and support for safety engineering projects.

This system was adopted after it was found that adjustments (required by the American Standards Association in cumulative records) and even slight human errors made manual bookkeeping-type record systems difficult to keep accurately, particularly in the light of the variety of information needed.

At West Allis Works, periodic reports showing rates and costs serve as incentive. These provide the foreman with his record, the superintendent with the combined records of several foremen, and the works manager with the combined record of several superintendents.

Three separate, distinct cards provide information on injuries, costs and hours worked. On each of these cards, the department number and a superintendent's number are punched in the same field.

When the cards are sorted and tabulated, all information needed for frequency and severity rates, as well as cost paid out, is available by department, superintendent, group or division, and entire plant.

An industrial injury record card (Fig. 1) is punched for each industrial injury severe enough to require a doctor's attention. An ex-

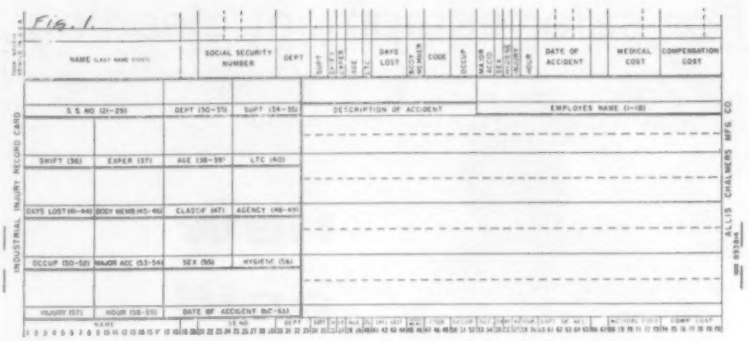


Figure 1. An injury record card is punched for every doctor case.

COST CARD		Column		
Name		1-18		
SS No	Dept & Supt	21-35		
Med Code	Xray Comp	41-46		
Accident Date		47-52		
Date Paid		60-65	0059	
Medical Cost		68-73	6 Digits:	
Compensation Cost		74-80	7 Digits:	
WA-9-417			Safety Services	
Punch on green 5081			Industrial Relations	

Figure 2. A cost card is prepared for use by key punch operator as a source document in punching the cost card in the system.

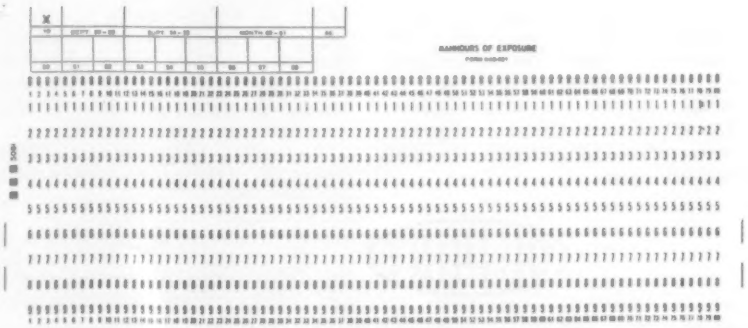


Figure 3. Card for man-hours feeds into the system the number of man-hours worked in a particular month in a specific department.

By ANN STRESAU

Safety Services Section, Allis Chalmers Manufacturing Company, Milwaukee, Wis.

planation of this card's classifications follows:

1. *Name.* The injured man's name is essential, since in most inquiries and discussions, reference is made to a case in the employee's name.

2. *Social Security Number.* This is the only unchanging identification of an individual.

3. *Department.* At West Allis Works departments are designated by a four-digit number.

4. *Superintendent.* Each superintendent has been assigned a two-digit number, the first of which indicates his group or division.

5. *Shift.* The shift on which the injured employee was working is identified as *one, two* or *three.*

6. *Experience.* A code from one to nine indicates how long an employee has been working for the company. (Fig. 4.)

7. *Age.* Actual years of age at the time of the accident is indicated here.

8. *LTC.* This code identifies the case as a doctor's case (0), a lost time or temporary disabling case (1), a compensation case (2), a permanent partial disability case (4), a permanent total disability (5), or a fatality (6).

9. *Days Lost.* Here the actual days lost or the time charged is indicated. A separate adjustment sheet lists the changes which occur in "days lost" (i.e. if the original estimate of time to be lost needs adjustment, or if the doctor indicates a percentage of permanent disability).

At the end of each month, old cases which need to be corrected (as indicated on the adjustment sheet) are withdrawn from the deck and repunched with the correct time loss. This keeps all cumulative reports accurate. The LTC column also may require change.

10. *Body Member.* A code (Fig. 4), is used for the body member injured.

11. *Code.* The first letter of this three-part code indicates the agency with which the employee was working; the second shows what the employee was doing at the time the accident occurred; and the third letter points up the major unsafe condition contributing to the accident or shows it was an unsafe practice which precipitated events leading to the accident.

12. *Occupation.* The company's job classification code for job analysis is used here.

13. *Major Accidents.* The total number of doctors' cases recorded for the employee is entered in this space. Accident repeaters are detected by sorting these columns.

CODES FOR INDUSTRIAL INJURY RECORD CARD

Experience

1. Less than 1/2 Year
2. 1/2 to 1 Year
3. 1 to 2 Years
4. 2 to 3 Years
5. 3 to 4 Years
6. 4 to 8 Years
7. 8 to 12 Years
8. 12 to 16 Years
9. Over 16 Years

LTC

1. Lost Time or Disabling Case
2. Compensation Case
4. Permanent Partial Disability
5. Permanent Total Disability
6. Fatal

Body Member

1. Eye
2. Head
3. Shoulder, Collar Bone
4. Arm, Wrist
5. Hand
6. Finger
7. Back
8. Chest, Thorax
9. Abdomen, Groin
10. Pelvis, Hip
11. Leg, Ankle
12. Knee
13. Foot
14. Toe
15. Multiple Injuries
16. Other

Classification and Agency

See Accident Code

Occupation

Allis-Chalmers Job Analysis Code

Sex

1. Male
2. Female

Hygiene

1. Dermatitis
2. Hearing Loss
3. Electric Shock
4. Occupational Disease
5. Infection

Injury Code

1. Fracture, Crush
2. Strain, Sprain, Pain, Kink
3. Bruise, Contusion, Concussion
4. Amputation
5. Burns, Scalds
6. Heat Exhaustion, Sunstroke
7. Asphyxiation, Shock
8. Wounds, Laceration, Abrasion, Puncture
9. Foreign Body, Sliver, Etc.
10. Other

Hour

1. 12:31 Midnight to 1:30 AM
2. 1:31 AM to 2:30 AM
   Etc.
13. 12:31 Noon to 1:30 PM
14. 1:31 PM to 2:30 PM
    Etc.

Safety Services Section
Industrial Relations Department

ACCIDENT CODE FOR CASES STARTING JANUARY 1, 1957

Agency Machine or Equipment Involved	Classification What man was doing	Condition or Procedure related to accident
A Hitching Equipment (or load)	A Material handling-manual	A Guarding and controls
B Power vehicle	B Material handling-power vehicle	B Piled or placed unsafely
C Hand vehicle	C Material handling-hand vehicle	C Lack of proper equipment
D Cutting type machine	D Material handling-hoist and hitch	D Defective equipment
E Grinding type machine	E	E Layout, light, ventilation
F Forming type machine	F Vehicle operation	G Hot material
G Molding type machine	G Machine operation	H Falling (or flying) objects
H Woodworking type machine	H Metal fabrication	I Foreign bodies in air
I Fabricating equipment	I Foundry operation	J Slippery, oily, wet, icy
J Foundry equipment	J Assembling	K Sharp edge, etc., chips and housekeeping
K Cupola, ovens, etc.	K Using hand tools	L Motion of (agency)
L Assembly	L Using power tools	M
M Hand tools	M Exposed to harmful material	N
N Power tools	N Falls, tripping, twists, body reaction, loss of balance	P
P Working surface	P Bumps when reaching, bending walking, "rising up," when no "fall" is involved	Q
Q Material-wood, lumber, boxes, etc.	Q Bystander	R
R Electrical equipment	R Using heating equipment	S
T Plant equipment or furniture	O Others (no knowledge)	T
U		U
V		V
W		W
X		X
Y		Y
Z		Z Unsafe procedure
O Others		O Others

Figure 4. Code used in preparation of industrial injury record card.

14. *Sex.* Men are coded 1, women 2.

15. *Hygiene.* Cases of special interest to the industrial hygienists are indicated here. This includes dermatitis, hearing loss, other occupational diseases, and infections. (Fig. 4.)

16. *Injury.* The type of injury, i.e. fracture, bruise, amputation, etc., is coded here. (Fig. 4.)

17. *Hour.* The hour at which the accident occurred, with one-half hour tolerance before or after the hour, is recorded here. Continental or army time is used to eliminate a.m. and p.m. designations. In this system 1 p.m. becomes 13 o'clock and midnight, 24 o'clock.

18. *Date of Accident.* The date is always written and punched in six digits, i.e., April 1, 1959 is 040159. This makes it simpler for the keypunch operator and avoids confusion.

19. *Medical Costs and Compensation Costs.* These are not punched

ALLIS-CHALMERS MFG. CO.

INDUSTRIAL INJURY REPORT

LITHO IN U.S.A. - A-C 12-57 FORM 4027-7

CLOCK NO. _____ NAME (1-19) _____ SOC. SEC. NO. (21-29) _____

8388 ☐	20-23 DEPARTMENT	24-25 DEPT.	26 SHIFT	27 EXPER.	28-29 AGE	30 L.T.C.	31-34 DAYS LOST	35-36 BODY MEMB.	37-39 CLASS	40-42 OCCUPATION	43-44 NO. OF ACC.	45 SEX	46 HYG.	47 INJ.	48-49 HOUR	50-55 ACC. DATE		56	57

ADDRESS _____ SHIFT 1ST ☐ 2ND ☐ 3RD ☐ OVER TIME ☐ AGE _____ SEX M ☐ F ☐

WORKS _____ RATE PER HOUR _____ DAY _____ WEEK _____

LAST DAY WORKED _____ HOURS WORKED LAST DAY _____ DATE RETURNED TO WORK _____

EMPLOYE'S FOREMAN _____ DEPT. _____ OCCUPATION _____

LATEST HIRING DATE _____ MARRIED SHOP SYMBOL YES ☐ NO ☐ _____ AM

DEPARTMENT WHERE ACCIDENT OCCURRED _____ WHEN ACCIDENT OCCURRED _____ 19_____ PM

DATE OF LAST DR'S CASE _____ TOTAL IND. INJURIES IN LAST 12 MONTHS _____

NATURE OF INJURY _____

PATIENT'S STATEMENT OF CAUSE OF INJURY _____

REPORTED TO WORKS HOSPITAL _____ 19_____ AM PM

FIRST AID RENDERED BY _____ 19_____ AM PM

REFERRED TO DR. _____ 19_____ AM PM

REPORT COMPLETED BY _____ 19_____ AM PM

PROTECTIVE EQUIPMENT WORN AT TIME OF INJURY:

SPECTACLE TYPE SAFETY GLASSES ☐

SIDE SHIELD SAFETY GLASSES ☐

CUP OR MONO GOGGLES ☐

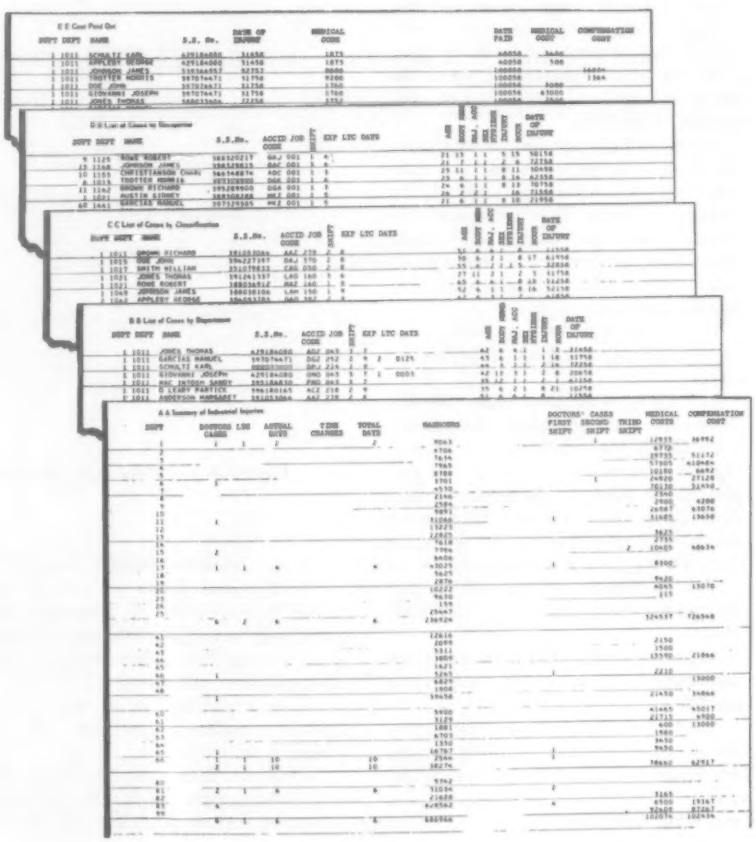
STREET GLASSES ☐

SAFETY SHOES - YES ☐ NO ☐

RX: SINGLE ☐ - B.F. ☐ - NO ☐

Figure 5. An industrial injury report for each case is sent to the accounting department. The department also receives cost cards and man-hour or exposure cards for salaried employees.

Figure 6. Examples of monthly reports.



until the end of the year. When the year is *closed out*, cost cards and accident cards are collated by social security numbers and date of accident. The total medical and total compensation costs paid out on each case is then punched into the accident card.

All bills for medical expenses are processed through the Safety Services Section, so charges can be made against the correct department. At this time a cost card is prepared (Fig. 2) for use by the key punch operator as a source document in punching the cost card for this system.

The only sections on the cost card which may require explanation are those relating to Medical Code and X-ray Compensation. The medical code is a four-digit number, the first of which indicates panel doctors, non-panel doctors, specialists, eye and ear doctors, skin specialists,

—*To page 133*

"PACKAGING" MICROWAVES FOR MOUNTAIN TOPS

"TJ" radio-relay station at Black Mesa, Arizona

In Arizona, the telephone company faced a problem. How could it supply more telephone service between Phoenix and Flagstaff—through 135 miles of difficult mountain territory?

Radio offered the economical answer: a new microwave radio-relay system recently created at Bell Telephone Laboratories. Operating at 11,000 megacycles, it was just right for the distance, and the number of conversations that had to be carried.

But first other problems had to be solved: how to house the complex electronic equipment; how to assemble and test it at hard-to-reach relay stations way up in the mountains; and how to do it economically.

On-the-spot telephone company engineers had some ideas. They worked them out with engineers at the American Telephone and Telegraph Company and at Bell Telephone Laboratories. The result: a packaged unit.

The electronic equipment was assembled in trailer-like containers at convenient locations and thoroughly checked out. The complete units were then trucked up the mountains and lifted into position.

The system, now operating, keeps a watch on itself. When equipment falters, a relay station switches in standby equipment, then calls for help over its own beam.

The new Phoenix-Flagstaff radio-relay link illustrates the creative engineering that the Bell Telephone System brings to its civilian and defense assignments . . . engineering that serves the country whenever called upon, wherever needed.

BELL TELEPHONE SYSTEM

PERSONALS

News of people in safety and related activities

Arthur Naquin Heads EEI Safety Committee

ARTHUR J. NAQUIN, recently appointed chairman of the Accident Prevention Committee of the Edison Electric Institute, has had a long and active career in the promotion of safety. Since 1941 he has been safety counselor and head of the Safety Department of New Orleans Public Service Inc. Previously he had been chief transit equipment engineer, transportation engineer, and head of the organization's schedule division. He is a registered professional engineer in Louisiana.

Arthur J. Naquin

Born in Denison, Tex., at the turn of the century, he received his primary education in the public schools of Alexandria, La. After graduation from Tulane University in 1924 with the degree of B. E. in Mechanical and Electrical Engineering, he was employed by General Electric at Schenectady and Erie.

From 1941 through 1945 he taught six basic and three advanced courses in industrial safety engineering at Tulane. In 1942 he was appointed a special agent of the U. S. Department of Labor and served as vice-chairman for Louisiana on the National Committee for the Conservation of Manpower in War Industries. He helped to organize the Delta Safety Society of New Orleans and served as its president in 1944.

He helped to organize the New Orleans Chapter of the American Society of Safety Engineers and served as its first chairman, 1949-51. He was also active in the organization of the Louisiana Safety Association in which he has served as vice-chairman and director.

In 1950 he helped to organize the Metropolitan New Orleans Safety Council. He has served continuously as director of the Council's Industrial Division and is currently its first vice-president.

On a regional and national basis, Mr. Naquin has served on the board of directors of the Southern Safety Conference since 1945 and as president 1955-56. In the National Safety Council he was general chairman of the Transit Section 1946-48 and is currently a member of the section's executive committee.

In industry association work he has been active in occupational and traffic safety efforts in the Southern Gas Association, the American Transit Association and the Edison Electric Institute. He is a trustee of the Veterans of Safety.

In other fields he has served as president of the Young Men's Business Club of New Orleans, and as chairman of the New Orleans Chapter of the American Public Works Association. He is a life member of the Louisiana Engineering Society, a member of Tau Beta Phi, the Institute of Traffic Engineers, and the American Society of Training Directors. Mr. Naquin also is a member of the Round Table Club of New Orleans and the Brotherhood of St. Andrews (Episcopal).

Monahan Heads Equipment Association

The Industrial Safety Equipment Association, Inc., held its Annual Meeting on June 23-26 at Point Clear, Alabama, and elected as president J. T. MONAHAN of American Optical Company, Southbridge, Mass.

Elected also at the meeting were Leon P. Debes, Safety Clothing & Equipment Co., Cleveland, Ohio, Vice-President, D. E. Houston, Safety First Supply Co., Pittsburgh, Pa., and Gordon P. St. Clair, Medical Supply Company, Rockford, Ill., as Trustees.

E. W. Bullard, Jr., E. D. Bullard Company, Sausalito, Calif., and A. G. Mowson, Bausch & Lomb Optical Co., Rochester, N. Y., carry over as members of the Board, while F. R. Davis, Jr., Davis Emergency Equipment Co., Inc., Newark, N. J., Junior Past President, continues as a member of the Board for another year.

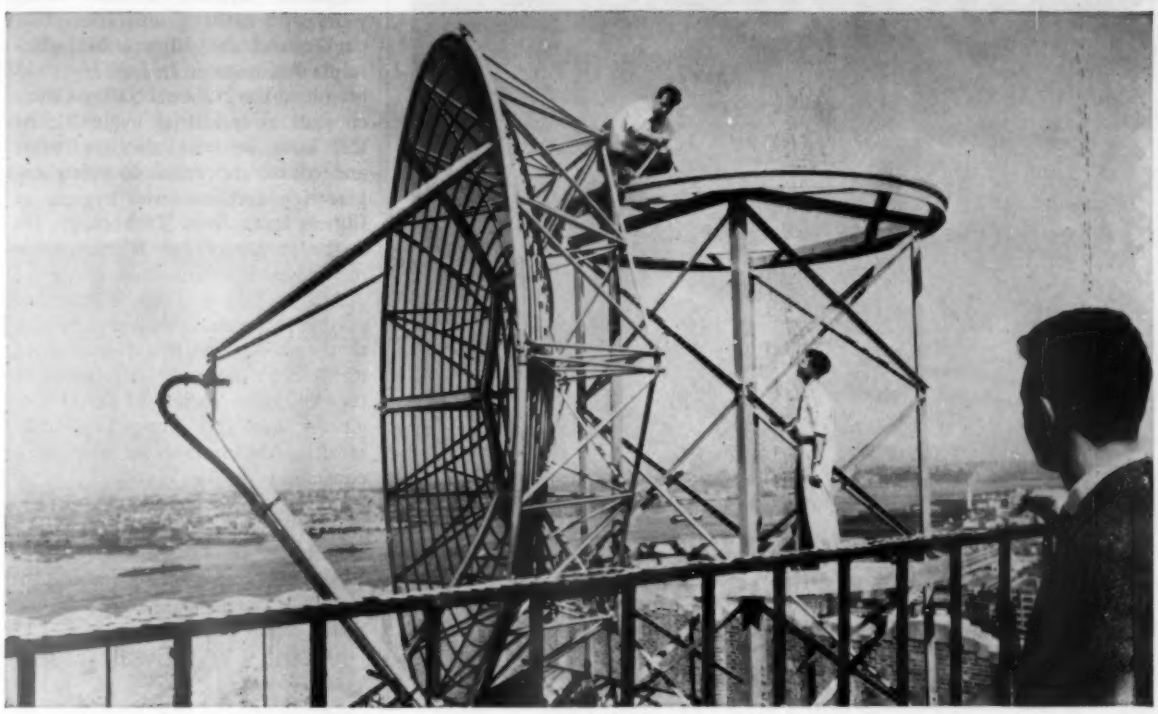
J. T. Monahan

IMA Names Bridges Managing Director

CLARK D. BRIDGES has been appointed managing director of the Industrial Medical Association, Chicago, succeeding Dr. Edward C. Holmblad, who retired May 1.

Well known in the field of occupational hygiene, Mr. Bridges came to the IMA from the American

THE U.S. TREASURY SALUTES THE COMMUNICATIONS INDUSTRY

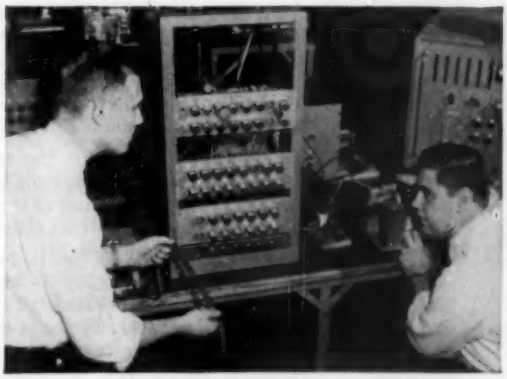


--and its people who buy Savings Bonds and strengthen America's Peace Power

The hundreds of thousands of Americans who earn their living at work with the telephone and telegraph industries are proud of the scope and skills of their service in local and worldwide communication. They're proud, too, of the vast and varied help their industry is giving to our national security.

Thousands of these telephone and telegraph people have a personal hand in building up America's Peace Power, too. They do this by purchasing U. S. Savings Bonds. Their regular purchase of Shares in America helps these patriotic people to reinforce their own security after retirement and to establish current reserves for such sound family projects as new homes and higher education.

It may be that your company has not recently shown your employees the advantages of buying bonds on the Payroll Savings Plan. If so, why not conduct a person-to-person canvass now? Contact your State Savings Bond Director for Payroll Savings promotion materials and personal assistance. Or write to the Savings Bond Division, U. S. Treasury Department, Washington 25, D. C.



Like so many thousands of their fellow craftsmen in the industry, these young employees are making regular use of their company's Payroll Savings Plan to contribute to America's Peace Power.

NATIONAL SAFETY COUNCIL

THE U. S. GOVERNMENT DOES NOT PAY FOR THIS ADVERTISEMENT. THE TREASURY DEPARTMENT THANKS, FOR THEIR PATRIOTISM, THE ADVERTISING COUNCIL AND THE DONOR ABOVE.

Medical Association, where he was assistant secretary of the Council on Industrial Health, becoming acting secretary on the death of Dr. Carl M. Peterson in 1955.

Mr. Bridges' experience in occupational hygiene includes many years with casualty insurance companies and the Illinois Manufacturers Association. In January 1943 he joined the National Safety Council staff as industrial hygienist. At this time he was also instructor and course supervisor in safety engineering and industrial hygiene at Illinois Institute of Technology. He is the author of *Job Placement of the Physically Handicapped.*

Mr. Bridges is a charter member of the Industrial Hygiene Association and was the first president of its Chicago Chapter. A member of the American Society of Safety Engineers and the American Public Health Association, he also is a consultant to the President's Conference on Occupational Safety, and a member of the President's Committee on Employment of the Physically Handicapped and the Industrial Conference of the National Safety Council.

Forms Consulting Firm

LEWIS B. EVERETT, formerly safety director and security administrator for Union Carbide Plastics Company at Bound Brook, N. J., has formed a management safety consulting firm, L. B. Everett Associates, with offices at 18 South Wickam Drive, Westfield N. J.

At Bound Brook, Mr. Everett also served as chemical engineer, department head in production, and head of process engineering. During his nine-year term as safety director, the company's seven-plant injury frequency and severity rates reached the lowest point in the company's history.

After graduating from Polytechnic Institute of Brooklyn in 1937, Mr. Everett joined Colgate Palmolive Company, transferring to Union Carbide as chemical engineer in 1941. He is a member of the American Society of Safety Engineers, American Institute of Chemical Engineers, National Institute for Disaster Mobilization, and National Fire Protection Association.

Heads Texaco Safety

QUINCY Y. TUMA has been named chief safety engineer for the nationwide activities of Texaco Inc., with headquarters in Houston, Tex. He succeeds Charles A. Miller who retired recently.

Mr. Tuma, a graduate of the University of Texas, has been with Texaco since 1933 and in safety work since 1938.

He is presently chairman of the Gulf Coast Division, Petroleum Sec-

Quincy Y. Tuma

tion, National Safety Council; vice-president for industry, Texas Safety Association; active on several accident prevention committees of the American Petroleum Institute and chairman of the Committee on First Aid; vice-chairman of the Houston Chamber of Commerce Fire Prevention Committee; a member of the Veterans of Safety and the American Society of Safety Engineers.

U-L Appointments

H. Baron Whitaker has been named vice-president and chief electrical engineer of Underwriters' Laboratories, Inc., with New York headquarters. He will supervise three electrical departments and will serve as contact man for ASA, AIEE, IAEI, NEMA, and other groups.

R. Derrick Barton has been elected assistant secretary of UL, with Chicago headquarters. He will

assist the secretary in technical matters.

Mr. Whitaker was graduated from North Carolina State College in 1936 with a degree in electrical engineering. He joined UL that year as an assistant electrical engineer.

From 1941 to 1945 he served with the U. S. Army Signal Corps. He returned to UL in 1946. In 1950 he became senior associate electrical engineer and in 1953 was made executive engineer. In 1957 he was named assistant to the vice-president.

Mr. Whitaker is a member of Tau Beta Pi and Eta Kappa Nu honorary engineering societies. He serves on committees of AIEE, IAEI, and NFPA, and is a registered professional engineer in Illinois.

Mr. Barton was graduated from Mississippi State College in 1940 with a degree in electrical engineering. He joined UL that year as an assistant electrical engineer.

He served in the U. S. Army from 1941 to 1946, when he returned to UL. In 1948 he was made service engineer and in 1953 executive engineer. He serves on committees of IAEI and NFPA.

Safety Appointments at J&L

Supervisory appointments in safety, employment, and training departments at Cleveland Works of Jones & Laughlin Steel Corporation have been announced by J. R. Powell, works manager.

STANLEY C. HEULER has been appointed supervisor of safety. He formerly was assistant to the supervisor of safety, employment and training.

JOHN F. LORENTZEN has been appointed supervisor, Employment and Training Departments. He formerly was a staff assistant in the Works' Personnel Relations Department.

Mr. Heuler and Mr. Lorentzen

—To page 130

Training Milwaukee's Leaders

—From page 25

Howard Pyle, president of the National Safety Council and the featured speaker at the closing of the 39th annual foremen's school this year, told the "graduating" students:

> You can find no more gratifying job than the part you are taking in this program—studying ways to reduce the terrible toll of accidents, the most devastating force abroad in America today.
>
> Every day you are exposed to industrial hazards of all types, but because of the techniques you have developed in the plants and have learned in schools like this, you are proving accidents can be controlled. I know of no substitute for everyday industrial safety effort, and there are no substitutes for people like you promoting the effort—on and off the job.
>
> You, as men and women responsible for the safety of others, are doing the same job as the doctor curing the sick body, the lawyer saving the innocent man on trial for his life. You do the same worthwhile work as preachers and priests—trying to make life more meaningful. You, too, are dedicated to saving the values of human life.

Featured at the general assembly of the opening session of this year's school, Gov. Gaylord Nelson of Wisconsin paid tribute to the success of the school, as reflected by the record, but warned that the job is not done—that "this fine record should simply spur you on to renewed efforts and higher safety goals, for the fact remains that industrial accidents in Milwaukee last year caused 43 deaths and 9,000 disabling injuries."

Turning to traffic accidents as the special concern of the state government, Gov. Nelson declared:

> It may come as a shock to you, as it did to me, that more than 1,100,000 people have lost their lives in traffic accidents in the last 34 years—equivalent to the population of the entire Milwaukee metropolitan area.
>
> You, in industry, have created an atmosphere so responsive

to safety that a worker is embarrassed if involved in a job accident. How can we cause our citizens to become equally embarrassed when involved in what we call "accidents" on our streets and highways?

I believe we can profit from lessons provided by you in industry. First, we can be more selective in licensing of drivers; second, we must be more firm in our enforcement of traffic regulations; and third, we must provide an improved network of highways.

Safety Education. General assembly speaker at the second session of the school was Harold Goodnough, sales promotion manager of the Milwaukee Braves, who emphasized the need for increased safety education in the schools and, particularly, the need for driver training at the high school level.

The 24 sectional speakers at the three sessions covered a broad range of subjects, from technical safety considerations in various trades to more abstract considerations facing present and prospective supervisors.

In welcoming the students to the opening session, Lester S. Olsen, Milwaukee Association of Commerce president and head of Olsen Publishing Company, challenged:

"Through this school, you are carrying a message to the whole wide world that Milwaukee, birthplace of the national safety movement, will forever remain the safest large city in America!"

Many of the speakers repeatedly used the tag-line originated 15 years ago by Carman Fish, editor of NATIONAL SAFETY NEWS, in a story in this magazine: "The School That Made Milwaukee Famous" (obviously paraphrasing the advertising slogan of a well-known Milwaukee product).

Key to the success of the school over the years must be attributed to the organizational genius of Jack Muth and of the committees he selects each year to work out details of the program. As Clark Woodward, chairman of this year's school and safety director of A. O. Smith Corp., put it in his introductory remarks:

"This meeting is the culmination of three months of planning by a

wonderful committee organization of 140 personnel and safety directors."

Jack Muth is a stickler for detail when it comes to the organization and scheduling of each phase of operation. Starting weeks in advance, he scans the lists of competent leaders among member firms —men who have specialized in safety promotion, communication, human relations, personnel administration, and all the management practices concerned with this kind of educational effort.

He picks the 140 best suited to develop a constructive program around the current theme, and assigns their committee responsibilities at a get-together meeting. Then come the shirt-sleeve sessions, where committee members sweat out details of program subjects and select speakers.

Jack makes repeated follow-up calls on all subcommittees, checks on acceptances from speakers, conducts the six-week enrollment campaign, confirms dates for use of the auditorium, arranges for the musical program, conducts a warm-up session for principals to detect flaws in the schedule, and develops his critical timing chart for the entire operation. He refers to these details as the *plumbing* job. The end result appears to be a geometric extension of his own energy and organizational ability.

His operation reflects his thinking—in terms of threes—"like a three-legged stool": an over-all objective, a constructive program and worthwhile accomplishment; the physical place of assembly, an audience and an effective program; advance preparation, a warm-up session and then the big show; a dramatic beginning, solid meat in practical sessions and dessert in the form of a nationally-known speaker. Jack considers his most important trilogy: a human appeal, a financial justification, and a community value.

The modest budget for the school operation comes out of association funds. No registration fee is charged. When Milwaukee's industrial leaders compare prevention costs with annual savings—55 lives, 7,000 disabling injuries and $12 million in reduced accident costs—they consider it an excellent investment.

Employee Booklets

EMPLOYEE education booklets are a basic part of your safety program. The National Safety Council publishes a wide variety of such booklets which can help shape sound safety attitudes or instruct your employees in the safe practices related to their work or off-the-job activities. Sample copies of recent booklets are available by circling the key number of the ones you want on the Reader Service Card at the back of this issue.

YOUR FUTURE—KEEP IT CLEAN

A booklet dealing with the problem of housekeeping in the plant. Colorful cartoons with breezy captions build a strong case for good housekeeping. Stock No. 195.79. Eight pages, 3½" x 6¾", full color illustrations. **Circle No. 503—Reader Service Card.**

WHAT TO DO ABOUT HOME INJURIES

A valuable reference book covering the prevention and emergency treatment of most home injuries. A must for every home. Easy to read, illustrated, the booklet is approved by the American Medical Association and the American National Red Cross. Stock No. 599.64. Thirty-six pages, 5½" x 8½", two-color illustrations. **Circle No. 504—Reader Service Card.**

THE PROFESSIONAL TOUCH

"Professional drivers are made—not born!" and this booklet shows how the average driver can acquire the techniques used by the "pros" to avoid accidents. A valuable booklet both for commercial drivers and passenger car drivers of all ages. Amusing illustrations. Stock No. 294.08. Twelve pages, 3¾" x 8", two colors. **Circle No. 509—Reader Service Card.**

ARE YOU SAFETY MINDED?

An amusing "rogue's gallery" of cartoon characters representing "types" of unsafe workers. An effective way to reach employees having the same attitudes and ways to help change them. Stock No. 192.15. Sixteen pages, 3¾" x 8", full color illustrations. **Circle No. 510—Reader Service Card.**

TIME FOR FUN

"Careless driving is just a lot of waste motion," this new vacation safety booklet advises. Its purpose is to help bring your employees back from vacation safe and sound. Stock No. 194.38. Eight pages, 3¾" x 8", full color illustrations. **Circle No. 512—Reader Service Card.**

WHAT'S IN IT FOR ME?

This booklet takes a good, hard look at the whole idea of safety—strictly from the worker's point of view. It shows how the worker stands to profit from a good safety record and it explains management's motives in a forthright way. Stock No. 192.09. Sixteen pages, 3¾" x 8¾", full color illustrations. **Circle No. 513—Reader Service Card.**

A PROFESSIONAL CODE FOR DEFENSIVE DRIVING

Dedicated to the millions of professional drivers who developed and refined the concept of "defensive driving" as their approach to the hazards of the highway, this booklet presents the defensive driving technique for all drivers. Stock No. 294.09. Twenty pages, 5¼" x 8¼", multicolored illustrations. **Circle No. 514—Reader Service Card.**

For information on other Council employee training publications write to National Safety Council, 425 N. Michigan Ave., Chicago 11.

Posters Pack Punch

—From page 50

and believed, because they are based on actual experiences from the company's own accident records," Kitchen said.

"Another advantage of the new posters is size," he added. "We needed a poster that could be seen, and we also wanted to get away from the bulletin board idea. Consequently, we developed large (35 by 45 vs. the standard 8 by 11) posters simply designed in bright blue-red colors with tie-in artwork.

"These are effectively placed in the work areas rather than on some remote bulletin board, and literally put safety 'on the job'," Kitchen said.

One of the first outside comments on the new series came in an insurance inspector's official report. The inspector, G. D. Jackson, engineer for Travelers Insurance Company, Dallas, Texas, commented:

"At the time of the above accident prevention survey we noted the excellent use of safety posters in this plant. This is one of the best plans for use of such posters that we have recently noted. Also, the posters were of such excellent quality and covered a particular hazard where they were posted."

"It's too early to determine the effect of the series on the company's safety record," Kitchen said. "However, a significant indication of the impact they have can be seen from employee reaction. We certainly know they're seen and read. Worker interest has been uniquely unusual with scores of enthusiastic comments being made concerning the 'personal statistics'."

Specific operations covered in the dual job instruction-safety posters include: "When Shoveling Grain," "When Entering Grain Bins," "When Using Car-Puller Cable," "When Stacking Bagged Material," "When Using the Manlift," "Loose or Ragged Clothing Near Machinery," "In Case of Fire," "In An Emergency," "Shut Off Power," and "Grain Dust Is Like Explosives."

The posters have been placed in appropriate locations at all Peavey system mills, elevators and terminals.

NEW SAFETY POSTERS

SEPTEMBER 1959

Keep 'Em

. . . FOR EFFECTIVE RESULTS IN YOUR SAFETY PROGRAM

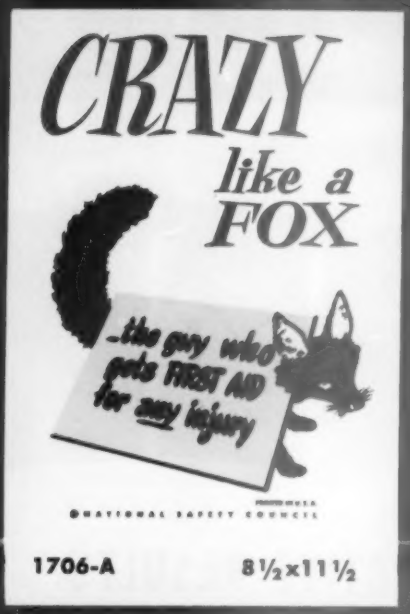
Put new posters up... hold your accident rate down

JUMBO POSTERS

Giant safety messages that are 11'8" wide by 9'11" high. Colorfully printed and weather resistant, these posters command attention. Issued monthly, JUMBO posters will add drama and impact to your safety program and get big results!

SAFETY BANNERS

A powerful safety message, skillfully designed and colorfully printed on cloth. They measure 3½ ft. high by 10 ft. long. Available in 2 types—outdoor and indoor. Issued monthly, these banners can be spotted in strategic locations in and around the plant.



1706-A 8½x11½

1456-A 8½x11½

1677-B 17x23

THERE'S AN EFFECTIVE POSTER

. . . for every problem

. . . for every program

To invite and maintain interest, use posters with a variety of appeal. A touch of subtlety (see #1720-A) will spice up your poster program, just as a humorous subject (#1716-A) will draw special attention.

Refer to the 1958 Poster Directory for a greater selection on all subjects.

1471-A 8½x11½

1700-A 8½x11½

1708-[illegible] 17x23

1469-A 8½x11½

©NATIONAL SAFETY COUNCIL

1681-B 17x23

©NATIONAL SAFETY COUNCIL

1672-B 17x23

©NATIONAL SAFETY COUNCIL

V-1696-B 17x23

©NATIONAL SAFETY COUNCIL

1720-A 8½x11½

©NATIONAL SAFETY COUNCIL

V-1694-A 8½x11½

©NATIONAL SAFETY COUNCIL

V-1697-B 17x23

©NATIONAL SAFETY COUNCIL

1716-A 8½x11½

©NATIONAL SAFETY COUNCIL

T-1693-B 17x23

©NATIONAL SAFETY COUNCIL

T-1691-C 25x38

T-1692-A 8½x11½

YOUR POSTER PROGRAM SELLS SAFETY . . . 'ROUND THE CLOCK!

You can't beat National Safety Council posters for adding *visual impact* to your safety program. They're the "color spectaculars" that make repeated visual impressions of the importance of safety in your workers' daily lives, in and out of the plant. Poster subjects should be related to plant accident experience, thus pinpointing causes, hammering home prevention ideas and achieving effective results. For further information or program planning aid, write direct to the Membership Service Division, National Safety Council.

Here's how to use posters most effectively

1 SELECT POSTERS FOR VARIETY

2 PLACE POSTERS STRATEGICALLY

3 DISPLAY POSTERS ATTRACTIVELY

4 CHANGE POSTERS FREQUENTLY

ORDER YOUR POSTERS TODAY!

Cash in on the timeliness, repetition and continuity of a poster program by placing your order now. Order posters from this bulletin or refer to the National Safety Council 1959 Poster Directory. The complete directory is available for 60c a copy. An automatic monthly poster service is also available at an annual low cost. Write The National Safety Council for further information.

POSTER PRICES*

Cat. No.	Type and Size	Single	2 to 9	10 to 99	100 to 999	1000 to 4999
182.13	"A" (8½x11½")—Any selection, each	.....	.....	$ .12	$ .07	$ .06
182.23	"B" (17"x23")—Any selection (except prefix "T"), each	.....	.....	.23	.195	.155
361.23	"B" (17"x23")—Any selection with "T" prefix, each	.....	.....	.20	.165	.132
361.31	"C" (25"x38")—Any selection	.40	.40	.30	.24	.22
184.41	JUMBO POSTERS — Annual subscrip., each (12 posters)	$ 69.00	67.00	65.00	61.00	
	SAFETY BANNERS — Annual subscrip., each (12 banners)					
188.51	INDOOR	93.00	87.00	83.00	79.00	
188.61	OUTDOOR	100.00	95.00	90.00	85.00	

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425 N. MICHIGAN AVE. • CHICAGO 11, ILLINOIS

PRINTED IN U.S.A.

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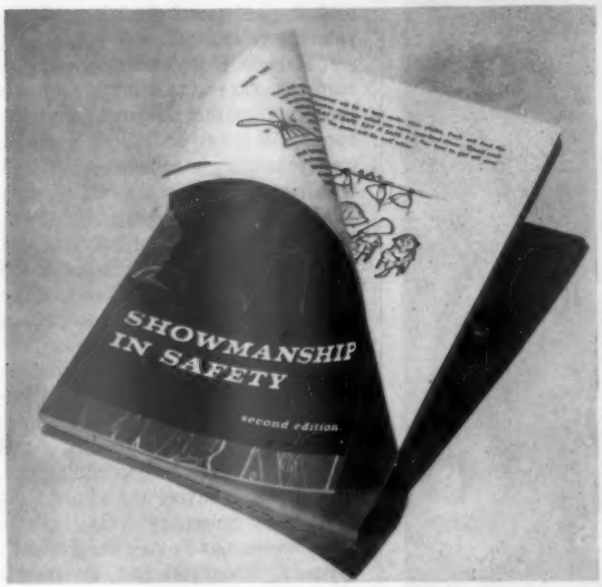

Second Edition of *Showmanship in Safety*

COLOR, showmanship and fun interjected into your safety program can help build real interest in accident prevention.

And with the all-new second edition of *Showmanship in Safety*, a 94-page, illustrated booklet, you have the key to making workers sit up and take notice.

Each page of *Showmanship in Safety* contains ideas for stunts, demonstrations, and promotions that will build interest, create favorable attitudes and bring a change of pace and a dash of color into your safety efforts.

Stock No. 129.81.

Plastics Safety Handbook

IN cooperation with the National Safety Council, the Society of the Plastics Industry has published a 208-page, fact-filled paperback book entitled *Plastics Safety Handbook*.

The publication is the result of years of effort by specialists in accident prevention, and contains sections on organizing a safety program, general plant hazards, and the hazards of specific plastics processes.

Topics range from accident records, fire prevention and materials handling, to compression and transfer molding, injection molding, thermal forming, and calendering, coating, and casting.

Plastics Safety Handbook is the first publication devoted exclusively to safety in the plastics processing industry.

Stock No. 129.62.

Office Accidents

THE National Safety Council has prepared a booklet called *Accidents in the Office!*

"Experience Shows," the colorful, eight-page publication says, "that many office accidents can be eliminated by common sense and courtesy."

Sample tips contained in the pamphlet:

Keep to the right at blind corners in the office.

Never open more than one file drawer at a time.

Be wary of smoking near such highly flammable materials as duplicating fluid.

Stock No. 195.50.

Library

—From page 36

that many new chemicals and drugs can cause acute and chronic poisoning, and symptoms similar to those of functional disease. The medical profession should find this to be a helpful publication, and the industrial hygienist will find it to be a valuable reference.

The book is well written, and the subject matter is presented in a form that enables the reader to find information quickly. It does not discuss poisoning mechanism in detail nor the animal experiments used in studying various poisons. However, this information is not necessary, if the publication is used as intended by the author. Many references are listed, if the reader is interested in more details.

The material is presented in four parts. Part I covers the classification and diagnosis of poisoning, medicolegal responsibilities, and emergency measures and equipment.

Part II discusses the clinical diagnosis of poisoning. This includes such subjects as Taking the Patient's History, Structural and Functional Pathology, Laboratory Tests, and Biochemical Changes.

Part III deals with the management of poisoning cases: Elimination of the Toxic Agent, The Rationale of Treatment, Symptomatic Treatment, etc.

Part IV contains short descriptions of individual poisons, including symptoms and treatment. Poisons are listed alphabetically, and the information presented is based on the analysis of several thousand case reports.

E. L. ALPAUGH

Safety in Coal Mines

Prevention of Accidents Due to Fires Underground in Coal Mines. I.L.O. Geneva 1959. 48 pp. $0.50. *Prevention of Accidents Due to Electricity Underground in Coal Mines.* I.L.O. Geneva 1959. 54 pp. $0.50. International Labor Office, 917-15th Street, Washington, D. C.

These I.L.O. Codes of Practice are the work of a group of experts and embody the knowledge and experience of many countries.

Mine fires and electricity underground have been factors in a substantial proportion of coal mine dis-

asters in recent years. This fact prompted the I.L.O. to urge these experts to meet and make recommendations concerning the prevention of such accidents.

The code on mine fires includes risks, technical preventive measures, fire protection organizations at the mine, fire-fighting equipment procedure during fire, and rescue organization.

The code on electricity underground concerns risks, authorization procedure for use of electrical equipment, technical preventive measures applicable to all mines, additional technical preventive measures required in fiery and dusty mines, electrical safety organization at the mine, supervision, and operation maintenance of electrical equipment.

These codes have no binding force, but are merely bodies of practical advice to guide those with responsibility for safety in coal mines.

Not all provisions mentioned in these codes can be applied to all coal mines in every country. Some provisions will require adaptation to national or local conditions. It would not be practicable to apply some provisions to existing mines and equipment. But with necessary adaptation, the codes as a whole might usefully serve as guides to those planning new mines and designing new equipment, and also for the alteration of existing mines or equipment.

These codes should be of value to all countries, particularly to those being rapidly industrialized.

It is recommended that these codes be widely distributed in coal-producing countries to reach personnel with a part to play in combating mining accidents.

CLINTON H. HOCH

BOOKS AND PAMPHLETS

Accidents

Report of the Industrial Accidents Statistics of New Zealand, 1957. 1959. 51 pp. Dept. of Statistics, Government Printer, Wellington, N.Z.

Fire Protection

Building Exits Code, 1959. 16th ed. 256pp. National Fire Protection As-

sociation, 60 Batterymarch St., Boston 10. (NFPA No. 101)

The Hazards of Radioisotopes Under Fire Conditions. J. E. Troutman. 1959. 20pp. Factory Insurance Association, 85 Woodlant St., Hartford 2, Conn.

Liquid Petroleum

LP-Gas Service Training Course. 1958. Issued by The University of Texas, Division of Extension, Industrial Education Department in cooperation with Liquid Petroleum Gas Association, Inc. Available from the University, Austin 12, Tex. $3.75.

Mines

Spherical Propagation of Explosion-Generated Strain Pulses in Rock. 1959. 21pp. Publications Distribution Section, Bureau of Mines, 4800 Forbes St., Pittsburgh 13, Pa. (Report of Investigation 5483)

Radiation

Living With Radiation, United States Atomic Energy Commission. 1959. 65pp. Superintendent of Documents, Washington 25, D. C. 45c. (Part I).

Respirators

Respiratory Protective Devices Approved by the Bureau of Mines as of Oct. 16, 1958. 1959. 25pp. Publications Distribution Section, Bureau of Mines, 4800 Forbes St., Pittsburgh 13, Pa. (Information Circular 7885)

MAGAZINE ARTICLES

Absenteeism

"Influenza Vaccination, Reaction, Rates and Absentee Experience." A. F. Mangelsdorff and P. H. Kriedt. *AMA Archives of Industrial Medicine.* July 1959. pp. 36/28-43/35.

Chemicals

"Strontium-90 in Food." J. L. Kulp and others. *Agricultural and Food Chemistry.* July 1959. pp. 466-469.

Civil Defense

"How to Live Through a Nuclear War." *Engineering News-Record.* July 16, 1959. p. 27.

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"Communicating Down the Line: How They Really Get the Word." Eugene Walton. *Personnel.* July-August 1959. pp. 78-82.

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"Another Bracing Failure?" *Engineering News-Record.* July 23, 1959. p. 25.

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"Use of Combustible Gas Indicators." N. W. Hartz. *Quarterly of the National Fire Protection Association.* April 1959. pp. 357-365.

Electricity

"16 Clear Signs That Say 'Power

Troubles Ahead.'" G. C. Quinn. *Factory*. July 1959. pp. 70-73.

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"CO_2 Keeps Hazardous Areas Under Control." *The Plant*. July 1959. pp. 33-35.

"Emulsify Gasoline—Don't Push It Away!" Philip F. Rose. *Fire Engineering*. June 1959. p. 472.

"Fastest Thing on Fires—Automatic Sprinklers." T. Seddon Duke. *Journal of American Insurance*. July 1959. pp. 12-14.

"Fire and Explosion in Metals." Paul F. De Gaeta and Arnold A. Weintraub. *Fire Engineering*. June 1959. pp. 461-463. (Part II)

"Foaming Runways for Crash Protection." *Firemen*. July 1959. pp. 12-13.

"How A Gasoline Spill Fire Was Fought." Edward F. Deignan. *Fire Engineering*. July 1959. pp. 546-547.

"Interior Fire Fighting Operations." William E. Clark. *Firemen*. June 1959. pp. 8-10. (Reprinted from the bulletin of Wisconsin State Board of Vocational and Adult Education.)

"Missile Designed for Firefighting." *Missiles and Rockets*. July 13, 1959. p. 45.

"Portable Wet Vacuum Cleaner for Safe Magnesium Grinding." Lewis List and Harold Kirk. *Grinding and Finishing*. July 1959. pp. 28-29.

"Protecting New York's Metropolitan Airports." William A. O'Connor, and Roy C. Petersen. *Fire Engineering*. July 1959. pp. 542-545.

First Aid

"First Aid Measures in a Finnish Chemical Plant." H. Th. Nyman. *Industrial Medicine & Surgery*. June 1959. pp. 276-277.

"First Aid Practices and Procedures." *Supervision*. June 1959. pp. 22-23. (A cross sectional view of policies adopted by 10 representative companies.)

Health

"Designing for Industrial Hygiene." *Industrial and Engineering Chemistry*. June 1959. pp. 52A-57A.

"Hidden Thirst and Heat Fatigue." James D. Sanderson. *Supervision*. June 1959. pp. 9 & 29. (Tests show that thirst is no gauge of the body's need for water.)

"Occupational Health Statistics." Lloyd B. Shane. *AMA Archives of Industrial Health*. July 1959. pp. 29/21-35/27.

Health Hazards

"Low-Back Pain." Joseph P. Cain, Jr. *AMA Archives of Industrial Health*. June 1959. pp. 35/593-37/595. (Evaluation of disability.)

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"Nickel Poisoning." F. William Sunderman and others. *AMA Archives of Industrial Health*. July 1959. pp. 44/36-49/41.

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Insurance

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Under Collective Bargaining, 1958." *Monthly Labor Review*. June 1959. pp. 646-652.

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"High Visibility Paint on Hard Hats Helps Prevent Accidents in Woods." *The Timberman*. July 1959. p. 8.

Material Handling

"How You Can Hit The High Cost of Handling in Maintenance." John D. Wray. *Factory*. June 1959. pp. 94-100.

Mercantile Establishments

"Summer Safety Campaigns Mean Increased Store Traffic." *Stereo Hi-Fi Retailing*. July 1959. pp. 20-23.

Mines

"Designs for Efficient, Safe, AC Power Systems." D. E. Hamilton. *Coal Age*. June 1959. pp. 98-100, 102, 104.

"Modern Unloading Techniques—For Expediting Coal Car Discharge." W. G. Hudson. *The Plant*. June 1959. pp. 38-40.

"Planned Maintenance Doubles Engine Life, Reduces Downtime." *Coal Age*. June 1958. pp. 82-87.

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"Pressman Must Follow Careful Daily Routine on Job." George M. Halpern. *The Inland and American Printer and Lithographer*. July 1959. pp. 66-67.

Psychology

"Injury Reduction by Identification of the Accident-Prone Worker." Kermit T. Johnstone. *American Association of Industrial Nurses Journal*. June 1959. pp. 35-37.

"The Motivational Approach to Safety." James E. Gardner. *Textile World*. June 1959. pp. 105, 160, 162.

Radiation

"Acute Effects of Microwave Radiation on Experimental Animals (24,000 megacycles)." William B. Deichmanor and others. *Journal of Occupational Medicine*. July 1959. pp. 36-381.

Railroads

"How Planning Speeds Wreck Cleanups." *Railway Age*. June 8, 1959, pp. 18-19.

"Safe Tie-Down Cushions Trailers." *Modern Railroads*. June 1959. p. 109.

"Tunnel Removed Under Traffic." *Railway Age*. June 8, 1959. pp. 13 & 26.

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"Information on Conveyor Belting Used in Food Processing." J. Wallace Rowland, Jr. *Rubber Age*. July 1959. pp. 611-614.

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"Supervisors Hold Safety Key." Joseph A. Gavin. *Engineering for Safety*. June-July 1959. pp. 13-14.

Welding

"Inert Gas Welding Can Be Hazard-

ous." Henry Allen. *American Machinist*. June 29, 1959. p. 100.

ADDRESSES OF MAGAZINES MENTIONED

Readers are asked to send their requests for copies of magazine articles to the publishers. The NSC Library is unable to fill such orders.

AMA Archives of Industrial Health, American Medical Association, 535 N. Dearborn St., Chicago 10.

American Association of Industrial Nurses Journal, 654 Madison Ave., New York 21.

American Machinist, 330 W. 42nd St., New York 36.

Coal Age, 330 W. 42nd St., New York 36.

Engineering for Safety, American Society of Safety Engineers, 5 N. Wabash Ave., Chicago 2.

Engineering News-Record, 330 W. 42nd St., New York 36.

Factory, 330 W. 42nd St., New York 36.

Fire Engineering, 305 E. 45th St., New York 17.

Grinding and Finishing, Wheaton, Ill.

Industrial and Engineering Chemistry, 1155 Sixteenth St., N. W., Washington 6, D. C.

Industrial Medicine and Surgery, 400 S. W. 69th St., Miami, Fla.

The Inland and American Printer and Lithographer, 79 W. Monroe, Chicago 30.

Journal of Agricultural and Food Chemistry, American Chemical Society, 1155 16th St., N. W., Washington 6, D. C.

Journal of American Insurance, 20 N. Wacker Drive, Chicago 6.

Firemen, National Fire Protection Association, 60 Batterymarch St., Boston 10.

Journal of Occupational Medicine, Industrial Medical Association, 28 E. Jackson Blvd., Chicago 4.

Missiles and Rockets, 1001 Vermont Ave., Washington 5, D. C.

Modern Railroads, 201 N. Wells St., Chicago 6.

Modern Sanitation and Building Maintenance, Easton, Pa.

Monthly Labor Review, Superintendent of Documents, Washington 25, D. C.

Personnel, American Management Association, 1515 Broadway, New York 36.

The Plant, Plant Publishing Co., St. Joseph, Mich.

Quarterly, National Fire Protection Association, 60 Batterymarch St., Boston 10.

Railway Age, Orange, Conn.

Rubber Age, 101 W. 31st St., New York 36.

Stereo Hi-Fi Retailing, 1628 Lunt Ave., Chicago 26.

Supervision, 404 N. Wesley Ave., Mount Morris, Ill.

Textile World, 330 W. 42nd St., New York 36.

The Timberman, 519 W. Park Ave., Portland, Ore.

Wire from Washington

—From page 14

we believe that such a delay or stretch-out will result in more traffic accidents than would occur if construction were completed on schedule."

The President's Committee for Traffic Safety called for immediate stepped-up action on all phases of accident prevention. Special note was taken that "in approximately two-thirds of the fatalities, violations of traffic laws are involved."

Calling for support of the Action Program, the committee urged "fair, firm enforcement of sound, uniform traffic laws and ordinances in every state and community."

The Committee's Advisory Council, chaired by Howard Pyle, president of the National Safety Council, met to discuss means of dealing with the problem.

Industrial Safety. Coal mine safety came under congressional con-

sideration. The Senate Subcommittee on Labor concluded hearings on three rival bills: S. 743 (Clark and 11 other senators), to make the Federal Coal Mine Safety Act applicable to mines employing fewer than 14 coal miners; S. 1562 (Cooper and three other senators), which would authorize mandatory closing of mines hiring fewer than 14 miners in case of imminent danger of a disaster-type accident, and would direct the U. S. Bureau of Mines to conduct an examination of coal mine safety and related economic issues; and S. 2403 (Cooper), to establish a temporary commission on coal mine safety to survey and study safety practices in coal mines employing fewer than 14 miners, and to review mine safety statistics.

S. 1562 is substantially identical with a bill, S. 3290, as amended, which was favorably reported by the Senate Committee on Labor and Public Welfare in 1958; S. 743 is identical with the earlier S. 3290 prior to its amendment by the committee.

The U. S. Bureau of Mines testified in favor of S. 743 and stated it would eliminate most of the "disaster hazards" present in such small mines.

The Bureau told the committee S. 1562 "may be inoperable," and that S. 2403 was unnecessary because all needed information was readily available.

The Interior Department expressed itself as willing to accept any of the three bills under hearing. Mine labor representatives endorsed S. 743; coal mine operators differed among themselves, some sponsoring S. 743 and others favoring S. 1562. Hearings on coal mine safety were also scheduled in the House.

The Federal Coal Mine Safety Board of Review formally called the industry's attention to the right of appeal from an order of the Bureau of Mines closing a mine for safety reasons.

The Bureau of Mines reported injury experience in the coking industry for 1958 showed a 6 per cent rise over 1957 in the over-all injury frequency rate. The fatality rate, however, was the lowest recorded in 43 years (except for one year, when it was the same rate).

A subcommittee of the Joint Committee on Atomic Energy held hearings on the public health and safety aspects of the disposal of radioactive wastes into the ocean.

Atomic Energy Committee representatives testified that existing "sea disposal operations are being carried out in a manner that is safe and adequate."

A special committee of the National Academy of Sciences reported low-level radioactive wastes of nuclear-powered ships could safely be disposed of in the oceans "without undue hazard to human health," subject to compliance with newly proposed safety procedures, which the committee outlined.

The AEC issued follow-up orders to operators of uranium processing mills to prevent the contamination of rivers by the discharge of radioactive material into streams. Under the new orders, performance in accordance with requirements is made a condition of the processor's license.

The House Subcommittee on Health and Safety favorably reported to the full committee H.R. 7476 for a two-year extension of the federal air pollution control program (see "Wire," July 1959.)

A senate subcommittee held hearings on S. 1425, to provide for the protection of railroad employees by regulating the use of track motorcars.

The Interstate Commerce Commission added a new paragraph to the U. S. Safety-Appliance Standards, relating to tank cars without underframes, and amended its regulations on the transportation of explosives and other dangerous articles.

Marine Safety. The Senate approved S. 2118, with amendments, to authorize the U. S. Coast Guard to prescribe regulations governing life-saving and fire-fighting equipment and other related matters on ocean, lake, sound, and foreign steamers (see "Wire," July 1959.)

The Coast Guard gave notice of the availability of revised "Rules of the Road" pamphlets, required to be kept on board all vessels greater than 65 ft in length, for ready reference.

The United States Department of Labor gave notice of hearings on proposed safety and health regulations for the ship repairing industry, under the recently amended Longshoremen's and Harbor Worker's Compensation Act (see "Wire," October 1958.)

Among the designated subjects and issues in the proposed regulations are: explosive atmospheres, cleaning and painting methods, welding, scaffolding, hoisting equipment, personal protective equipment, and gas hazards.

Aviation Safety. The Federal Aviation Administrator announced that in administering the newly enacted federal airport aid act (see "Wire," August 1959), he will "rule out any terminal building construction not *clearly essential* to the safety, convenience, or comfort of persons using airports for public aviation purposes," and stressed the necessity of a "safety requirement" in each project.

The FAA issued a notice of proposed rule-making, to require all passenger transport aircraft to be equipped with airborne weather radar. According to FAA, "a recent survey of air carrier accidents for the calendar years 1950 through 1958 has highlighted the importance of airborne weather radar as a safety measure in preventing aircraft accidents during severe weather conditions."

In noting the advantages that such equipment "can provide for the safety of operations," FAA made special mention of the excellent safety record of carriers so equipped.

FAA and the Civil Aeronautics Board jointly rescinded the 3½-year-old program of voluntary pilot reports of near mid-air collisions.

FAA issued notice of proposed rule-making to require air carriers to control the drinking and serving of alcoholic beverages in flight: Passengers may not be served if they are, or appear to be, intoxi-

cated; and passengers may not drink alcoholic beverages, except if served by the carrier. Penalty for violation would be $1000.

This proposed regulation admittedly grew out of congressional hearings on H.R. 169, which would prohibit the serving of alcoholic beverages to passengers on aircraft in flight. FAA specifically justified its proposed regulation as "necessary to provide adequately for safety in air commerce."

The Navy and Marine Corps reported that their pilots set a safety record during the fiscal year July 1958—June 1959. For this period the accident rate was 2.6 major accidents per 10,000 flight hours, compared with 2.8 in the previous fiscal year and 5.5 in 1953.

H.R. 8518 (Roberts) would add to the Federal Aviation Act of 1958 provisions relating to research as to the medical causes of air accidents and as to human requirements in aircraft design.

Home Safety. Action on plastic bags, H.R. 7458 (see "Wire," August 1959) was deferred by the House Committee on the District of Columbia for technical industrial reasons and to await action on various bills attempting to deal with the subject on a national basis. S. 2458 (Humphrey) would require plainly visible warnings indicating the danger of suffocation to children.

The Children's Bureau pamphlet *Infant Care* has a special notice, warning parents of the dangers of plastic film bags to children.

The AEC will conduct tests to determine the safest type of housing against atomic radiation.

Farm Safety. The Attorney General of the United States ruled that safety considerations were an appropriate concern of the Secretary of Labor in administering the farm labor placement program.

A legal opinion stated that the Secretary could withhold the interstate recruitment facilities of the United States Employment Service from growers who fail to provide migrant farm workers with housing that will not endanger their health or safety, and transportation arrangements no less favorable than those prevailing in the area.

In discussing *National Farm Safety Week,* Sen. Carlson stated that "more than half of the fatal farm accidents occur through use of farm machinery and (by) drowning."

Schools and Colleges. H. R. 8334 (King) seeks to encourage participation in amateur rocketry, especially by young people, through establishing facilities for study and experimentation in each state, under the sponsorship of the National Aeronautics and Space Agency. The bill attempts to minimize "the hazards inherent in such activity" through providing basic equipment under safe conditions and expert supervision.

Fire Prevention. By proclamation, the President designated the week beginning Oct. 4, 1959, as *Fire Prevention Week,* and called on the American people, state and local governments and private organizations to promote programs for fire prevention.

Laboratory Ventilation

—From page 27

exhaust hood in the room is most important. In one example, typical of many poor locations, there may be no means of supplying air to the laboratory, except through the open doorway, and the hood is in the direct path of the incoming air stream. Cross draft velocities will be in the range of 40 to 50 fpm. across the hood face. We cannot expect the air to turn sharply and flow into the hood, as so many trained arrows like to indicate.

A second example illustrates a more favorable hood location for the same room. Distance between hood and doorway is such that the supply air will lose velocity before coming within the influence of the hood. If this room were shorter, it would then be possible to get a condition where the entering air would come into the hood and still have sufficient momentum to rebound and cause turbulence in the hood and at the hood face.

A very simple hood can do a satisfactory job; but in poor locations, such as near the doorway, exhaust velocities must be higher than average to overcome cross drafts.

A simple hood, constructed largely of glass and stainless steel, located well away from the doorway through which the air must enter, can perform satisfactorily at average face velocities.

Exhaust ductwork. Good ventilation provides that the ductwork in the building be under negative pressure. Thus, any leakage due to poor construction or general depreciation of the ductwork will be into the ducts, confining the contaminant. This is a relatively simple point; yet we find many poor installations.

The most convenient location for the fan on top of the hood is usually the wrong one. While a fan on the roof or on the building wall requires weatherproofing for the motor, these are still the preferred locations. Additionally, in the use of flammable materials there is a distinct advantage in mounting the fan outside, since explosionproof construction is not required for the motor, and the cost is much less. Also, in cases of motor failure, replacements can be obtained rapidly and economically.

The same principle holds true for large involved systems of ductwork with more than one hood connected to the exhaust system. All ductwork in the building should be under negative pressure to prevent leakage of materials. In these systems duct connections should be streamlined, with branch ducts entering at angles of 30 to 45 degrees, instead of straight T connections.

In handling ventilation air at high velocities, streamlined connections are important. Ductwork must be sized to maintain minimum transport velocities, whenever particulate matter is being carried. Otherwise, settling of material will occur in sections where the duct is too large.

The range of transport velocities varies from 3,500 to 4,500 fpm. In hoods intended to remove only fumes, gases, or vapors, duct velocity may be reduced to any practical figure. Usual choice is about 2,000 fpm.

In recent years there has been

rapid development in corrosion protection for ventilation systems. We see applications ranging from Transite pipe to stainless steel alloys, metals coated with polyvinyl chloride, and recently applications of fibrous glass-reinforced plastic ductwork. Each material has its own special application, but usually there is considerable overlapping, allowing selection on the basis of everyday economics.

The fan for the system should always be located outside the building. An often-overlooked point is that the fan should be installed properly to achieve its rated performance. One typical fan connection uses an elbow directly at the fan inlet; usually the only excuse for this is its convenience, since this elbow will reduce fan performance.

All fans rated in accordance with the standards of Air Moving and Conditioning Association are tested with straight runs of ductwork and the inlet and the outlet. These are necessary to obtain expected performance.

Usually laboratory fume heads are not provided with collectors or scrubbers to remove the contaminant from the air before it is released to the atmosphere. Therefore, the fan discharge must be located properly. Preferably the discharge should be a minimum of 5 to 10 ft. above the roof.

This cannot be applied as a rule, as the proximity of other buildings or the existence of peculiar wind currents affect the ultimate path of exhausted air. Generally, the exhaust should not be located so fumes are redirected to the laboratory roof, or that prevailing winds may carry fumes into the building at another point.

Illustrating a poor fan installation, a straight T is sometimes used as weather protection. The exhaust is directed back down to the roof and may be carried over the roof and into windows on the lee side of the building. Also, in terms of fan efficiency, this is a very poor discharge arrangement.

In a typical inverted cone type of weather cap, obsolete for years, the cap not only imposes additional resistance on the system but also reverses the flow of exhausted fumes and puts them back on the roof. If high temperature or corrosive materials are in the air stream, you can imagine what happens. Also, since this location is near the parapet, fumes may be trapped on the roof and may re-enter the building.

The most practical fan discharge is the straight vertical stack with no directional baffles or projections. A fume released vertically will travel upward considerable distances before being subjected to atmospheric conditions. A common type of stack head offering weather protection is the so-called butterfly type of damper.

The variety of corrosive and toxic materials handled in the laboratory hood, plus the varying demands of air cleanliness, are such that the use of collection is a highly specialized problem. Generalization is dangerous at any time. However, engineering attention must be given to the over-all problem of eliminating toxic and nuisance fumes from the atmosphere in which we live.

Air supply. We have discussed the fundamentals of removing the contaminant by exhausting air through the exhaust hood, glove box, or other enclosure. To accomplish this, we are dependent on an adequate supply of clean ventilation air.

"Make-up air," or in the broader sense, "air supply ventilation," is necessary in the laboratory. Properly engineered, supply air ventilation will not only supply sufficient make-up air to the exhaust system, but will also provide good ventilation for the laboratory, offices, and often for the entire building.

The supply of air in any room or building is not infinite. Since air from the laboratory is exhausted outdoors, the supply of air must come from outside, whether directly to the laboratory or indirectly through offices and adjacent areas.

In exhausting, a fan creates a so-called negative pressure, causing air to flow into the hood and ductwork. Replacement air is attracted to the negative pressure area at the inlet to the exhaust system, which in the typical small laboratory is the room itself.

Without provision for air supply there will be inward leakage of air through outside windows, doors, and, in extreme cases, through any other exhaust equipment in the room. Experience has shown that where there are two fans exhausting from the same space with no provision for make-up air, the stronger fan will overcome the weaker, and air will actually enter the room against the weaker fan.

In multiple exhaust hoods, when one hood is turned off, results can be disastrous, since outside air will immediately downdraft through the fan not in operation. When a fan must exhaust out of the room without air supply, the capacity of the fan will be reduced from the original design volume, and there may be less control at the hood.

The only satisfactory ventilation system is one providing for exhaust of contaminated air and replacement of the air with controlled air supply. This may be done on an individual laboratory basis, or an air supply system can be designed to satisfy the ventilation requirements of the whole building.

In an air supply arrangement, such as that in a central air supply system, the main supply duct is carried in unused space above the corridor ceiling, and the air supply is split. A portion of the air goes directly to the laboratory, where it is under control of the exhaust fan at the hood.

This air volume is less than the exhaust air requirements of the laboratory; the balance of the exhausted air enters the laboratory from the corridor through grillwork. The corridor obtains its air supply from adjacent offices, which receive a portion from the main supply system and are provided with returns to allow this air to pass through the corridor.

In practice, the offices are under a slight positive pressure; the corridor is under less pressure; and the laboratory is under a slight negative pressure with respect to the corridor and offices.

In the event of exhaust fan failure or a reduction in volume due to belt wear, fan corrosion, or the like, a sensitive control in connec-

tion with a metering orifice in the exhaust system will close the direct air supply to the laboratory. The only air the laboratory can obtain must come from the corridor, minimizing possibility of leakage to other areas.

There is considerable cost involved in supplying heated or cooled outside air to the building. Air supply ventilation is not a luxury but a necessity. When air supply is used, it is often possible to eliminate auxiliary fans and roof ventilators to remove nuisance or odor-producing materials which may be in use in other parts of the laboratory.

For general ventilation of this type, 1 cfm. of supply air more than offsets 1 cfm. of additional exhaust air, since it provides a supply of uncontaminated air to the laboratory and eliminates a critical negative pressure that may be developing.

Air conservation. In recent years a number of radical designs for laboratory hoods have been proposed. These include so-called "low-velocity air foil" hoods and "air supply" hoods. These, it is claimed, will reduce the amount of air necessary for ventilation and will reduce the heating and air-conditioning load.

In practice, these designs do reduce the heating and ventilating load because they operate at lower exhaust volumes. Unfortunately, reports indicate they are not effective in providing control.

Basically, the air-foil hood design is good, since we know a more streamlined hood entry will improve flow characteristics. Flow characteristics at the face of the hood, however, are not the only criteria for establishing face velocity.

Face velocity must overcome the tendency of the material to leave the hood under its own power and the crossdrafts at the face of the hood. Experience shows a minimum of 100 fpm. average velocity is required to give adequate face control. Air foils will be beneficial, but they cannot be used to reduce face velocity.

In so-called air supply hoods, one design which has attracted a great deal of attention uses air-supply slots or grills at the face of the hood to blow a curtain of air

across the opening. In most cases this air is taken directly from outdoors.

We know from experience that any air jet supplied under pressure creates considerable turbulence and tends to entrain adjoining air into the stream—a basic operating principle of air ejectors. We cannot see that this stream of supply air will always enter the hood without spreading contamination at the face of the hood and throughout the room, since some of the entrained air must certainly come from the hood.

There are three principal objections to the use of a hood with built-in air supply:

1. There will be excessive turbulence at the face of the hood due to basic problems of design or to normal obstructions at the hood face.

2. During the hood's life, corrosive materials used in the hood will have a serious effect on the exhaust fan. Unless given careful maintenance, the fan will lose efficiency. At the same time, the supply fan is handling relatively clean air and will provide an almost constant volume. The result is a steady decrease in face velocity.

3. Under many conditions of winter use, the cold air supply will cause condensation in the hood. It is possible to turn off the air supply in winter, but this defeats the purpose of the entire installation.

In the future, our laboratories will be handling more materials of high toxicity, or suspected high toxicity, as fundamental research programs continue to expand. We will also find increasing use of radioisotopes. The problem of air conservation will become quite critical. It is our responsibility, therefore, to examine our techniques of ventilation and laboratory design.

The Upjohn Company at Kalamazoo, Mich., has used local exhaust ventilation to provide spot control with a small volume of air.

A small hood, moving on nylon rollers, exhausts 270 cfm., sufficient to control the benzene vapors released. The nylon rollers and a bonding wire used in the nonmetallic flexible ductwork are included as fire protection. With this type of ventilation, engineers avoided installation of a large bench-type hood which would have required many times more exhaust.

We have also observed the use of a hood similar to a glove box on an ordinary production arc-welding job in the manufacture of fractional horsepower motors. With this installation, the normal glass front was replaced with tinted welding glass. Instead of glove ports the hood had a slot at the bottom through which the operator's arms could project, providing good control with a minimum of exhaust air.

We expect similar designs can give adequate ventilation and personal protection for small, noisy operations.

Local or spot ventilation will not work unless the nature of the contaminant and the way it is dispersed are recognized and it is used by the chemist. Similarly, the glove box technique will not be effective un-

less the chemist is willing to accept minor inconvenience to obtain the additional protection.

Good ventilation is the result of careful planning and design. The hood must be selected for practical use. The exhaust volume of air must be determined on the basis of the hood's frontal opening and the conditions under which the hood is used.

ACKNOWLEDGMENTS

1. *Industrial Ventilation—A Manual of Recommended Practice;* Committee on Industrial Ventilation, American Conference of Governmental Industrial Hygienists.

2. *Design of Laboratories for Safe Use of Radioisotopes;* AECU-2226, Donald R. Ward, Isotopes Division, U. S. Atomic Energy Commission.

3. *Evaluation of Laboratory Fume Hoods;* H. F. Schulte, E. C. Hyatt, H. S. Jordan, R. N. Mitchell, Industrial Hygiene Group, Los Alamos Scientific Laboratory, Los Alamos, N. M.

4. *Ventilation and Fume Hoods—Survey of Information;* G. L. Jepson, Ventilation Engineer, Upjohn Company, Kalamazoo, Mich., National Safety Congress, October 24, 1957.

5. Dr. A. Somerville, Director Isotope Laboratory, General Motors Corporation, Research Center, Detroit, Mich.

6. F. T. Schroeter, Safety Engineer, Ethyl Corporation, Detroit, Mich.

7. G. L. Jepson, Ventilation Engineer, Upjohn Company, Kalamazoo, Mich.

Crane Booms

—From page 76

dom injured when any part of a rig strikes an electric line. Workmen on the ground, however, may receive severe shocks if they are touching the rig or cables to the boom or holding the load being handled.

Should the crane operator attempt to get off his equipment while any part is still making contact or pulling an arc from the electric wire, he also would be seriously injured if he made simultaneous contact with any part of the crane and the ground.

Other operations, such as spotting the machine and lifting long materials, account for many accidents. Moving a crane with a suspended load (traveling) often runs the boom or cable into power lines.

Operations likely to involve an accidental contact with a power line include guiding the load, pulling the load cable, working around the machine, stepping on or off the ma-

chine, removing material, and hooking, or unhooking, or otherwise contacting the machine.

Electric Shock

The effect of electric shock on the body is summed up in Data Sheet 287, *Grounding Electric Shovels, Cranes and Other Mobile Equipment.* Paragraph 3, "Protection of Employees from Electric Shock," is important since as little current as 1/10 ampere through the heart can cause death. A current of 1/50 ampere is very painful and can result in loss of muscular control. These low currents can be forced through wet skin by an electric pressure of 100 volts. No employee should be exposed, even momentarily, to contact with 100 volts.

Current rather than voltage is the determining factor in death. The wide variation in voltage required to send a current through the body exists because the resistance of the body varies when wet or dry. Body resistance is made up of combined skin and body resistance.

In high-voltage shocks, serious burns are often produced because high voltage punctures the outer skin. The heart, brain, and spinal column are the three most critical regions. When the magnitude of 60-cycle current is slowly increased, the following happen:

1-3 milliamperes—perceptible but not painful.

8-15 milliamperes—painful, causing involuntary contraction of the muscles.

15-20 milliamperes—painful, muscular control is lost.

20-50 milliamperes—passing between arms or an arm and a leg involves chest muscles, and breathing becomes difficult.

Death is due to one of three fundamental causes: cessation of respiration due to a block in the part of the nervous system which controls breathing; reduction of circulation of the blood due to ventricular fibrilation of the heart; or overheating of the body.

In addition to electric shock, death may also be due to such complications as falls or blows.

Rescuers should apply artificial respiration without delay in all cases of suspended breathing. If the supply of oxygen to the brain is cut

off for more than 5 to 8 minutes, irreparable damage is done to brain cells. Continue resuscitation until breathing is restored or rigor mortis sets in.

Equipment failure. One of the most common accidents happens when a hoist breaks and loose cable whips into the power line.

Supervision failure. Records show that in the majority of contact accidents, the foreman was not present when the unsafe act occurred. When operating around power lines, his presence should be mandatory.

Basic Precautions

Crane booms are being made longer and more cranes are being used, making power line contact an everyday hazard in construction work and many plant operations.

It is difficult to look over a 100-ft. boom into a bright sky and tell whether a ¼-in. line is 2 ft. or 20 ft. away. An optical illusion is created under such conditions. One way to correct this illusion is to drive a stake some 10 or 12 ft. long directly under the power line. If work is to be done parallel to the power line, it would help the operator if stakes were driven under the line about 20 ft. apart.

The crew can also help the operator. Many accidents occur when he is swinging or raising the boom and is unaware of power lines on the blind side or directly overhead. The operator must depend on signals for movement of his crane, and the foreman of the workmen should be present every minute a crane is operated in the vicinity of power lines.

The crane operator, and with truck cranes the driver, should also be required to look over the area where the crane is to operate, so overhead wires may be noted. Rough terrain may cause boom contacts.

Such accidents usually occur when cranes attempt to cross under the lines or travel on a rough roadway parallel to power lines. On uneven ground the boom may whip enough to make contact. With long booms, tipping of a crane may raise or swing a boom tip 8 or 10 ft.

This type of accident also happens when cranes cross unpaved roads with high crowns. The crane operator and crew are generally aware of the power lines but do not allow for uneven ground.

Foremen should be present at all times, regardless of the size of the job.

General instruction for work around power lines issued by the Workmen's Compensation Board of British Columbia include a list of power line boom incidents, a request for careful planning of work around power lines, and the need for notifying the power company so one of the following protective measures can be taken:

1. De-energize the lines.
2. Move the lines.
3. Cover lines with protective material.
4. Erect guards to prevent contact.

The voltage carried in a power line can be estimated fairly closely by recognition of the types of insulators, pole structure, crossarm assembly, and wire arrangement. Such a chart appeared in the *Construction Safety Newsletter* for March 1958, and copies can be obtained from many electric utility companies.

Management should establish policy covering methods of operation, use of standard signals, employment of authorized operators, and conformance with state, local, and other regulations.

Location of lines. Often routes of power lines become obsolete and dangerous because of the growth of the community. What appeared to be an isolated and safe route when constructed becomes a dangerous one in a congested area. Changing conditions should be surveyed constantly.

Nearness to other structures and congested traffic areas should be checked continuously and corrective action taken. Temporary relocation around active construction areas should be considered.

Even though code heights and clearances are observed in the original construction, the nature of the area often calls for extra clearances. Code clearances are minimum and are intended only as a guide.

Observance of actual conditions in business and residential areas often suggests the need for greater clearances. Busy highways with special equipment traffic need special treatment. Construction areas where cranes are to be used should be studied carefully.

Location of equipment. In considering the safe working distance for a crane to operate, it would be well to quote from the Army Corps of Engineers *Safety Requirements:*

Par. 18-10: Equipment shall not be operated in close proximity to high-voltage (440 volts or more) lines until the governing utilities authorities have been notified and the operation coordinated with them. In addition, such operations shall not be conducted unless one of the following conditions is satisfied:

a. Power has been shut off and positive means taken to prevent the lines from being energized.

b. Equipment being used, or any part thereof, cannot contact the lines.

c. Equipment which is capable of making contact shall be positioned and blocked so no part can come within 10 ft. of the line. A notice of the 10-ft. limitation shall be posted at the operator's position.

The practice of "walking" cranes with suspended loads over long distances or uneven ground should be prohibited.

Protective devices. Several types of electronic warning devices are on the market. One type consists of a photoelectric eye mounted on the boom tip and connected electrically to the crane cab. When the eye reaches a predetermined distance from the power line, a horn or other signal sounds.

A type of crane boom guard now being marketed protects the boom from contact. If the boom accidentally comes in contact with an overhead power line, the insulated guard prevents the hot wire from coming in contact with the steel framework of the boom.

Another protective device consists of an insulated load hook which prevents the current being carried to the load.

With any protective device, its effectiveness is in proportion to the care used in installation and maintenance. Careful check should be made at frequent intervals for deterioration or damage.

Personnel. Selection of operators and ground crew, especially for busy and dangerous locations, should emphasize alertness, judgment, and sobriety.

Operators of hoisting equipment should be able to read and understand signs, instructions, and the signal code used. They should be more than 21 years old and should have had a physical examination within one year prior to date of employment, and annually thereafter to detect deficiencies of eyesight or hearing, and heart or other ailments that might interfere with safe operation.

Regular instruction in operating practices should be scheduled for old and new officers and groundmen. Posters should be displayed conspicuously and changed on a definite schedule.

Should equipment come in contact with a live power line, here are a few important things to do:

1. Keep everyone away from the equipment.

2. The operator should clear the machine from the wires.

3. If wires have fallen, keep everyone away and notify the power company.

4. No person in contact with energized equipment should be touched.

5. A dry clean rope or dry, unpainted pole or similar object may be used to rescue anyone in contact with the electrified machine and the ground.

6. Start artificial respiration if a victim is unconscious and not breathing.

Dedication Plus

—From page 19

that endurance is fully developed and you will have become a man of greater character with the right sort of independence.

Does a safety engineer need courage—especially when as a staff advisor he need not make the major decision, and so not take the brunt of blame for a mistake? I said earlier that, although he might be a staff man, he should be involved and influential in safety decisions. To be on the sidelines, and still have to see no mistake is made, often takes courage.

If there isn't time for selling, and if your line authority insists on going ahead unsafely, you must protest effectively. And here comes your need for courage. You must be heard. You must find the key. You must use every skill and aid and then, if necessary, under threat of censure, you must display courage and keep faith in your dedication to safety. Don't back down!

Let me use myself as an example. A safety engineer from another location was visiting Springfield. As our group talked about safety problems, we drifted into a discussion about how we handled a sizable emergency and what part I played in it. I said I went to the scene and from a control center established at the scene, with proper subordinates, directed the control of the emergency.

Forcefully but diplomatically, our visitor stated he believed this was wrong. Experience at his plant had proved it.

"Your operating people are com-

"That's the idea! Keep your feet off that wet floor."

petent and trained in their emergency procedures," he said. "Safety engineers will be there to help them out, and you should stay in your office where you can be the most help in handling outside contacts and where we can find you when we need you. You'll be asked for help when it's needed, but stay where you can be located and where you can handle your part of the emergency."

I accepted the suggestion and had occasion to try it once. It wasn't easy, but it worked.

It took a bit of courage, you'll admit, for a visiting safety engineer to tell a plant manager emphatically that he was on the wrong track.

I've mentioned only five major characteristics: dedication, sensitivity, creativity, endurance, and courage. I still have one quality to point out. But these first five, I believe, are particularly essential to a safety engineer. I haven't mentioned many abilities and activities expected of him, such as knowledge, intelligence, leadership, selling talent, training ability, decisiveness, participation, engineering instruction, and the host of detailed expectations. These and others you know and accept.

So I go on to my last major expectation—*perpetual happy discontent*. Safety engineers and plant managers striving for accident-free operation must be able at any time (and this is where *perpetual* comes in) to record measurable progress toward the safety goal. This progress gives the *happy* or satisfaction quality. But because our progress is only toward the goal, not attainment of it, we must have *discontent* and be motivated to new levels of effort and effectiveness. Never boastful of past performance, we must be humble and enduring.

Let me turn to The Book once more, again J. B. Phillips' translation, Paul's letters to the Philippians:

I do not consider myself to have arrived, nor do I consider myself already perfect. But I keep on, I leave the past behind and with hands outstretched to whatever lies ahead, I go straight for the goal.

As I've talked about perpetual happy discontent, I've included plant managers as well as safety engineers. We are together in this effort, and we share the challenge of the goal. It is an attainable goal—accident-free operation.

Congress Plans Complete

—From page 23

Harold J. Cotshott, Jr., New Products Div., Clark Controller Co., Cleveland, Ohio, will discuss "The Importance of Safety Valves for Friction Clutch Stamping Presses." This will be a Power Press and Forging Section program.

Public Utilities Section members will see the motion picture, "Rescue Breathing," illustrating mouth-to-mouth resuscitation. Harry M. Dye, chairman, Safety Services, Arlington County, Virginia American Red Cross, and assistant safety engineer, Potomac Electric Power Company, Washington, D.C., will moderate the discussion following the film.

The Association Safety Swap Shop is scheduled as an informal exchange of successful safety activity ideas by and for association executives and association safety committeemen.

John F. Jones, safety supervisor of Commonwealth Edison Company, Chicago, has arranged to conduct a three-day series on accident prevention fundamentals. Topics will serve as refresher information for experienced safety men or as initial instruction for safety men new in the field.

A workshop, based on panel members discussing questions from the audience, will involve solutions for multi-plant safety administration problems. Participants on the panel will be:

Michael F. Biancardi, manager, Safety Services Dept., Allis-Chalmers Manufacturing Company; Gordon L. Bowen, safety and workmen's compensation administrator, American Radiator & Standard Sanitary Corp.; Russell DeReamer, safety manager, International Business Machines Corp.; Raymond D. Harvey, safety director, Industrial Safety Section, Ford Motor Company; and H. M. Huntington, assistant consultant, Industrial Safety, International Harvester Company.

Chemical Section members are to hear about "Training Laboratory and Production Personnel to Handle Radioactive Sources." Harold Hoyle, supervisor, Environmental Research Laboratory, The Dow Chemical Company, will present this program.

The Food and Beverage Section membership, Dairy Products Div., is to have a panel discussion, guided by Arthur S. Foust, executive secretary-safety, The Borden Company, Houston, Texas. The panel will ask and answer: "What Part of Our Safety Program Do We Find Most Difficult to Accomplish?"

Capt. D. L. Steele, vice-president of operations, Federal Barge Lines, Inc., will speak on "The Barge Operators' Biggest Safety Problem." This will take place before the Marine Section, as will "Comparative Towing Safety Factors, Western Rivers vs. East Coast," comments by Capt. Frederick K. Diezendorf, general operating manager, Moran Towing & Transportation Company.

Led by Joseph F. Wickless, supervisor of safety, Division of Compensation, City of Baltimore, Md., a panel of three experts will discuss "A Municipal Program—How It Has Been Done" before the Public Employee Section. Panelists are to be:

Arthur DiVincent, Personnel Department, Metropolitan Dade County, Miami, Fla.; James F. Gleason, safety officer, City of San Diego Civic Center; and U. S. Grant, safety coordinator, Department of Personnel, City of Niagara Falls, N. Y.

"Handling of Low Temperature Fluids and High Pressure Oxygen" is to be presented by Franklin Himmelberger, safety director of Air Products, Inc., Allentown, Pa. He will speak before the Aeronautical Industries Section.

George P. Benish, manager of mining sales for Joy Manufacturing Company, St. Louis, will talk on "The Lectronic Sentry for Ground Protection of Cables and Machines" before Coal Mining Section members.

Pulp and Paper Section representatives will hear Forrest E. Kimmell, safety and medical director, Sutherland Paper Company, Kalamazoo, Mich., comment on "Ability Instead of Handicaps in the Replacement of Employees."

Lea P. Warner, Jr., director of public relations and safety for Warner Company, Philadelphia, will give an illustrated presentation on "Safe Lockout Procedures." He will speak to Cement, Quarry and Mineral Aggregates Section delegates.

VOICE OF THE READER

Let's have your view on current topics. You don't have to agree with us

Microwaves

ALBUQUERQUE, N. M. In "News Briefs" in the May issue under the subject of "Microwaves" it is stated that frequencies below 1000 mc do the most damage. It appears to me this could give the impression that frequencies above 1000 mc are relatively harmless.

It is true that frequencies between 200 mc and 900 mc penetrate deeply, and possible overheating could occur before the person exposed became fully aware of it. We cannot overlook the fact, however, that the 12.3 cm spectrum (the region between 2400 mc and 3000 mc) has been found critical for production of cataracts.

The paragraph continues to state that injury is not instantaneous; it takes sustained exposure to intense sources to destroy tissue.

It is generally agreed that any exposure to radio-frequency energy having a power density of 10 mw/cm² or greater, should be avoided in the case of transient personnel, and I feel that the maximum allowable power density for prolonged exposure or permanent assignment should not exceed 1 mw/cm².

The statement that injury is not instantaneous but that it takes sustained exposure to destroy tissue, may create a false sense of security, since it apparently disregards the power density which in turn is dependent upon the received power in watts, the absolute gain of receiving probe, and the wave length in cm.

—A. BURTON METZGER
Professional Engineer

Painting Ladders

CHICAGO. In the article, "Latest on Ladders," on page 42 of the August NEWS you have quoted the ASA Code as stating, "Painting is satisfactory, etc." as a protective measure.

I believe this is dead wrong. In my long experience in the ladder field I have run across ladders that had been painted, and you could take the ends of them and break them with your hand. Damp rot or dry rot had set in and could not be detected due to the paint covering. I have also known where a splice was made in a ladder side rail and then painted over. When the ladder was put in use an accident resulted.

The painting of ladders, in addition to hiding the grain and making inspection difficult, also adds to the weight. You can get equal protection with raw or boiled linseed oil or clear wood preservatives. These permit longer inspection and lessen the possibility of damp or dry rot but do not add to the weight.

As you may know, due to these reasons, the State of Illinois Ladder Code does not permit the painting of ladders or stages. This has been in effect since 1953, and there is a penalty of $500. Users were given five years' grace before the penalty went into effect. There are possibly other states that do not permit the painting of ladders, and therefore there is conflict between the ASA Code and state codes.

In this article you have referred to state laws and local ordinances, but I think this matter of painting should be clarified.

—N. F. BORGAARD, *Patent Scaffolding Co.*

"Try not to let it bother you—he seldom drops one."

Effective Inspections

—From page 80

should make safety inspections, let us consider the remaining three questions—where, what, and when to inspect. These may be thought of together because *where* an inspection is to be made will depend upon *what* is to be inspected, and *what* is to be inspected will determine *when* the inspection should be made.

There is no hard and fast rule to govern the frequency of inspections of all items. For example, it may be necessary, due to local conditions, to inspect hand-operated fire extinguishers once a month, and in other locations once a year would be often enough. The frequency should be shown on the lists of items to be inspected.

I have mentioned that inspections relating to health hazards should be undertaken only by the Industrial Hygienist. The inspection for noise levels usually will involve at least two series of tests—one before corrective action is taken and the other afterward to determine how much the noise level has been reduced.

Here is a good rule of thumb to follow in determining whether a noise level survey is necessary: Stand in the noisy area at arm's length from another person and try to carry on a conversation in a normal tone of voice. If the speakers must shout to be heard, there is a definite need for a noise level survey.

Inspections for health hazards should be made at points of operation at regular intervals. The frequency of inspections will be determined by the degree of hazard of the materials handled and the potential exposures in day-to-day operation. Spot checks of the atmosphere at locations other than points of operation should also be made to detect the potential exposures of other employees and people occupying neighboring properties. This is especially needed when disposing of toxic or obnoxious waste materials through stacks, roof ventilators, burning, or burying.

Boilers, elevators, hoists, and other equipment requiring highly

specialized knowledge are usually required by law to be inspected at least once annually by licensed inspectors. Depending upon special conditions, such equipment may be inspected more frequently to assure safe operation.

Also, other inspections of gas cylinders are made routinely by workmen. Odor testing of residual atmospheric gases in returned cylinders will reveal the presence of contaminating gases or oil. Hammer testing of cylinders will reveal excessive internal corrosion or the presence of appreciable quantities of liquid substances such as water and oil. Visual inspection of the external surface of the cylinder will detect dents, arc-burn marks, and exposure to excessive heat.

In small plants the manager or superintendent will usually inspect every point of operation, every machine, and all building areas on his frequent tours through the plant. He will detect such things as poor housekeeping, unsafe piles of materials, the condition of floors and stairways, unsafe tools, and many other potential accident-causing factors. He may, and it would be highly desirable to do so, take the foreman with him on such inspection tours.

In medium-sized to large plants the manager usually delegates the safety inspection job to the safety committee and requires reports of the unsafe items discovered and what was done to correct them. Such committees may be composed of supervisors only or of supervisors and workmen. The safety engineer, the plant nurse, and the industrial hygienist are usually members of these committees. Inspection forms listing the items that are to be inspected, the intervals of inspection, and what to look for are necessary for the guidance of all inspectors. Unsafe conditions and unsafe acts are usually listed separately.

I will repeat what I said earlier about these lists. They should be prepared for each plant and each department. Items that do not apply in the plant or the department to be inspected should be omitted. Such lists should include selected specific items for inspection which come under the following broad classifications:

Physical Conditions

Electrical equipment — main controls, heaters, and lights.

Machinery—exposed gears or belts, placement of machines, and operating speeds.

Walkways and aisles.

Elevators and hoists.

Materials handling equipment—crane cars, tow motors, and conveyors.

Tools—hand- and power-operated.

Health hazards—gases, fumes, dusts, radioactivity, noise levels, ventilation, and sanitary facilities.

Fire protection—sprinklers, hoses, hand extinguishers.

Personal protective equipment and clothing.

Storage areas—overloading, crowding, and unsafe arrangement of materials.

Working conditions—light, temperature, unusual noise levels, and crowded work spaces.

Personal Acts

Authorized use of tools and machines.

Safe use of tools and machines.

Safe working speeds.

Replacement of guards.

Working or standing under suspended loads.

Repair or adjustment of equipment in motion, under pressure, electrically charged, or containing dangerous substances.

Horseplay.

Use of personal protective devices and clothing.

Work habits not covered by above descriptions.

The items mentioned here do not exhaust the possibilities of the broadest classifications of things to inspect for, but they will provide a starting point for the preparation of tailor-made inspection lists.

Safety inspection records are usually handled personally by the managers of small plants. In larger plants they may be sent to the chairman of the safety committee, to the safety engineer, or to the safety department for disposition.

Orders to correct unsafe conditions should be handled as soon as possible after the inspections are made. Where delays may be necessary before an unsafe condition can be corrected, the inspector and all people concerned should be notified and be told the reasons for the delay.

Also, when a reported item is

found on investigation not to be hazardous, the inspector should be told why this is so. This is part of the training he needs for making future inspections more effective.

When safety inspections reveal unsafe personal acts or habits the man's foreman should be notified at once. Much has been said about the foreman's responsibility to talk with the man and train him to perform his work safely. The foreman may seek aid from the safety engineer or elsewhere but it must be he who makes the corrections.

Construction Jobs

—From page 68

Perhaps we find that experience has been written for us in an orderly manner but has been misfiled under the headings *safety regulations* and *building codes*. Each item represents experience where lives and property were lost, adding up to several lifetimes.

The safety engineer has purposely been kept out of this picture. He must be the power behind the throne and not a minor figure in the necessary chaos of construction. He's the man who will make the plan click by being on the alert for defects. He's the man to coordinate the plan, requiring each worker to carry his share of the load.

Obviously, to devise an efficient safety program, it's necessary to know what problems to expect, to delegate responsibilities and authority, and to act according to plan.

Most construction projects are similar, differing only in the amount of materials and manpower. Successful safety, whether on a large or small job, reduces to the same elements: organization and experience.

It doesn't matter whether the program is presented in bound volumes or as notes on a scrap of paper. What does matter, however, are the answers to two queries: Is the plan practical? Can continuous follow-up be made so the plan becomes an integral part of each work operation? If your answers to these questions are *Yes*, you're on your way to a safe construction job record.

Seamanship

—From page 72

ited to a few. These committees meet monthly, discuss work practices and conditions and submit recommendations to a shore safety committee which handles recommendations through established channels. The safety supervisor provides special discussion subjects for ship safety committees.

Realistic statistics measure the effect of the accident-control effort. Except in rare instances, if Tidewater is required to pay for lost time resulting from an injury, the fact is scored as such.

This includes the seaman who is allegedly injured aboard ship, stands his next and succeeding watches, leaves the ship when it reaches port, and at that time finds it necessary to be hospitalized, or to be treated as an out patient of the United States Public Health Service or in a clinic.

If he is paid for such time ashore, whether or not he signs on again on a Tidewater ship after his recovery, a disabling injury is scored on the record. The principle followed is that safety statistics submitted to management should be an index to the actual cost of personal injury claims.

Present control of accidents was not achieved immediately after the start of the program. In the beginning, supervisory shore personnel handled the administration of the program in addition to their regular duties. A reduction of 7 per cent in the accident frequency rate took place the first year.

Because the supervisor could not give adequate time to handling all phases of the program, a full-time safety supervisor was employed in 1957. Reduction in disabling injuries for that year over the previous year was 21 per cent. The reduction in 1958 over 1957 was 47 per cent. This amounted to a reduction of 61 per cent over the 1955 record.

In addition to becoming fewer in number, disabling injuries suffered were less severe. Severity in 1958 was 36 per cent less than in 1955. Human suffering lessened by the number of employees injured and by the lowered seriousness of injuries sustained.

A factor contributing to fewer

disabling injuries is the care given to employees who are injured despite safety efforts of their supervisors.

If an employee is hurt while en route to or at an out-port, and medical attention is needed, the master of the vessel arranges to have treatment given by the nearest available physician.

The seafaring man, who usually thinks only in terms of marine hospitals, is given prompt treatment with resultant lessening of the effect of the injury. This also makes it possible for the employee to return to the ship at once, if the doctor finds his injury to be of a minor nature.

If the seaman is injured en route to his home port at Delaware, he can expect to be met at the dock by the safety supervisor, who then takes the injured employee for medical treatment. If the injury is serious, the safety supervisor arranges necessary transportation to the desired hospital or to the employee's home.

This type of personal attention assures the injured seaman that Tidewater has a personal interest in him and does not consider him just another body required to fill the ship's complement.

Confidence built up by this attention also assures him he can return to duty with the Flying A fleet and be given further prompt attention, if his injury should not heal as expected.

The safety supervisor gives equal attention to employees suffering from illness. These cases also are taken to the nearest point where expert medical attention is available. The effect of this policy has been to shorten periods of illness and resultant absences.

The safety supervisor makes supplementary investigation of personal injury accidents to assist ship's officers in determining the basic cause and corrective action to be taken. The company's management recognizes the responsibility of line management and the immediate supervisor for the safety of employees.

The supervisor, who instructs his men in use of machinery and proper job performance, is expected to see the job done in the manner he prescribes. If the job is done properly, the firm feels it will be done safely.

Much effectiveness of the accident control program in Tidewater's Marine Dept. is due to Glenn E. Ankrum, safety supervisor. Ankrum has a background as an educator and as an officer in the U. S. Navy, in which he currently is a reserve officer.

Ankrum also corresponds with seamen hospitalized or kept home by serious illness or injury. This additional personal touch has contributed to the seamens' conviction that their employer is concerned about them as individuals.

An Ankrum suggestion led to the staging of the firm's first fleet safety contest—a competition which further improved the company's safety performance.

Four tankers in the Flying A fleet completed their operations in 1958 without a disabling injury. The crews of these vessels received individual safety achievement lapel pins.

Vice-President J. G. Jimenez, Tidewater's eastern division general manager, presented these awards at a luncheon in Delaware attended by the officers and crew of the *S.S. Flying A New York*. This ship had gone 418 days without a disabling injury, as of Dec. 31, 1958, and had piled

up considerably more time by the date of the presentations.

Individual awards also were presented to the crews of the *M.S. Flying A*, the *M.S. Baltimore Getty*, and the *M.S. Newark Getty*.

Bronze plaques, commemorating safety achievements of crew members, went to the captains of these vessels, with instructions that the plaques be mounted in conspicuous places aboard ship to inspire safe ship operation.

Mr. Jimenez said: "A sincere, never-ending program of education and the practice of safety at all times can make a ship or any other place safe to live and work by cutting accident frequency to the barest minimum.

"In the three short years since 1956, when our safety program was instituted, the pendulum has swung completely — and now we rank among the very best in the maritime industry. Safety and seamanship are now synonymous in Tidewater's Flying A fleet."

Personals

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succeed C. P. Vorhes, who earlier was named coordinator of safety for J&L.

Mr. Heuler joined J&L in Jannary 1956 as a sales correspondent, entering J&L's Training Department as a safety trainee in May 1957. He was appointed assistant to the supervisor of safety, employment, and training in September 1958.

A native of Pittsburgh, Mr. Heuler attended schools there. He was graduated from Duquesne University, Pittsburgh, in 1952 with a Bachelor of Arts degree in Liberal Arts. He since has completed courses in graduate industrial relations at Duquesne and debating at John Carroll University. He is a member of the American Society of Safety Engineers.

Mr. Lorentzen also joined J&L in 1956 as an industrial relations trainee. He was appointed a staff assistant in the Cleveland Works' Personnel Relations Department in July 1957.

A native of Chicago, Mr. Lorentzen attended schools there. He was graduated from Beloit College, Beloit, Wis., in 1953 with a Bachelor of Arts degree in psychology, and since has completed courses in industrial relations at the University of Illinois.

Duggan Heads Society of Fire Protection Engineers

JAMES J. DUGGAN, director of safety and fire protection for Union Carbide Chemicals Co., Charleston, W. Va., was elected president of the Society of Fire Protection Engineers convened in annual meeting recently.

A section of the National Fire Protection Association, the Society met during the five-day annual meeting of the NFPA, internationally known non-profit technical and educational fire safety group.

Other officers elected by the Society were: first vice-president, Warren J. Baker, manager, Technical Department, Insurance Company of North America; second vice-president, John N. Pryce, chief fire protection engineer, Canadian Under-

writers' Assn.; secretary-treasurer, Robert S. Moulton, technical secretary, National Fire Protection Association; executive committee for three years, Hugh V. Keepers, assistant manager, Fire Prevention & Engineering Bureau of Texas; and Alan L. Kling, director of loss prevention, Olin Mathieson Chemical Corporation, New York, N. Y.; for executive committee for two years, Charles H. Howe, Jr., fire marshal, Montgomery County, Md.

R. L. Ward Retires From B&O

RONALD L. WARD, a general safety supervisor for the Baltimore and Ohio Railroad, has retired after 42 years' service.

Mr. Ward joined the B&O as a repairman in the Riverside Yard at Baltimore, where he was appointed a safety supervisor in 1942. He became general safety supervisor in 1949 over a territory covering the Eastern Region of the railroad.

For many years Mr. Ward was known to hundreds of B&O employees for organization of athletic programs. Mr. and Mrs. Ward have lived in the Riviera Beach section of Anne Arundel County, Md. They plan to make their home in St. Petersburg, Fla.

OBITUARY

ESTHER MYERS STEPHENSON

MRS. ESTHER MYERS STEPHENSON died August 4 at Presbyterian Hospital, New York City, after a brief illness.

Mrs. Stephenson was vice-president in charge of education of the Stephenson Corporation, which she and her husband, William H. Stephenson, founded in Red Bank, N. J., in 1946. The firm manufactures resuscitation and anesthesia equipment and scientific instruments.

Mrs. Stephenson was a leading figure in the field of respiratory physiology, chemical tests for determination of intoxication, and an internationally known teacher of modern techniques in anesthesia, resuscitation, and inhalation therapy.

A registered nurse, she started her career after graduating from the Harrisburg Hospital School of Nursing, Harrisburg, Pa. She specialized in anesthesia at Jewish Hospital School of Anesthesia in Philadelphia, and was graduated from Columbia University with a B. S. degree in Hospital Administration.

In collaboration with her husband, Mrs. Stephenson founded the International Rescue and First Aid Association in 1948. This organization has in 11 years developed into a world-wide institution, largely due to her effort.

She was the recipient of many honors from hospitals which benefited from her efforts. She wrote many articles on oxygen therapy and anesthesia which were published in journals throughout the world. In 1957, Mrs. Stephenson was a featured speaker on resuscitation at the International Congress on Occupational Health in Helsinki, Finland.

Arthur V. Rohweder, NSC Board Member, Dies

Safety leader for 40 years. On Board of Directors for quarter century.

Safety lost one of its outstanding leaders in the death of ARTHUR V. ROHWEDER in Duluth, July 15. He was 63 years old.

Mr. Rohweder, superintendent of safety and welfare for the Duluth, Missabe and Iron Range Railway Company since 1917 and a member of the board of directors of the National Safety Council for more than 24 years, had been in the forefront of the safety movement for 40 years.

"His leadership," said Gen. George C. Stewart, executive vice-president of the Council, "was a substantial factor in the development of safety programs throughout the nation."

William H. Cameron, one of the founders of the Council and its first managing director, recalled Rohweder's "persistent and consistent" devotion to safety through the years.

Mr. Rohweder variously served as vice-president of the Council for industry, for local safety councils, and for home and farm safety. As chairman of the National Conference on Home and Farm Safety, he helped found the Council's home and farm safety programs. He served in many capacities on the executive committee of the Railroad Section and was the first president in 1941 of the Veterans of Safety.

The city of Duluth and the entire state of Minnesota continuously felt the vigor and impact of Mr. Rohweder's safety efforts.

In 1922 he helped organize the Duluth Safety Council and was a founder of the Duluth Industrial Safety School. He also was a founder of the Minnesota Safety Council and was chairman of its executive committee from 1928 to 1938. He was president of the state council from 1934 until his death.

He was chairman of the Minnesota Public Safety Committee from 1934 to 1937. He was safety advisor to the governor of Minnesota and coordinator of safety activities of the departments of state government for more than 25 years. He had been general chairman of the Governor's Traffic Safety Conference in Minnesota since 1947 and had been active as chairman of the Governor's Industrial Safety Conference since 1950.

ARTHUR V. ROHWEDER

He also served as chairman of the Minnesota delegation and had been a member of various committees of the President's Highway Safety Conference since 1946.

In the early days of traffic safety, he represented his state at the Hoover Conference of Street and Highway Safety in 1923.

Under Mr. Rohweder's direction, safety activities of the Duluth, Missabe and Iron Range Railway have brought the company 16 first place honors from the National Safety Council's Railroad Employees' National Safety Award. His company also won 15 Harriman Awards for outstanding performance in passenger and employee safety. He had planned to retire from his position next year and devote full time to public safety.

Surviving Mr. Rohweder are his widow, Mary; two sons, Ralph and James; a daughter, Mrs. Marion J. Aubin, and 16 grandchildren.

Keeping Tab

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dentists, hospital, miscellaneous, and compensation.

The remaining three digits are assigned so the doctors fall in alphabetical order in these groups when a straight sort of the medical code is made. In the x-ray column, the number of x rays taken is recorded and the following column is punched 2, if the payment covers a compensation case.

These codes are used specifically by the compensation department to study doctors' charges, rather than for any analysis of accidents.

The card for man-hours (Fig. 3) feeds into the system the number of actual man-hours worked in a particular month in a specific department. Hourly paid time is automatically recorded on these cards from the payroll setup. Hours for salaried employees are estimated:

For any one department, take the number of salaried employees times the number of working days times eight. To this add the total overtime hours, and subtract total absence and vacation hours. The result is written on the man-hours of exposure card and is added to the "hourly paid" exposure by the machine when it tabulates the report.

Each month the accounting department receives an industrial injury report for each case (Fig. 5) to be used in punching the accident card. The department also is furnished with cost cards and man-hour of exposure cards for salaried employees.

Cards for man-hours of hourly workers have been prepared by the accounting department, and notification of any changes on the adjustment sheets has been made. The monthly report is now ready to be run.

While reports can be tabulated in various ways, at Allis-Chalmers West Allis Works, these sources supply information needed monthly:

A. Tabulation by department and summary by superintendent for the current month:

Number of doctors' cases
Number of disabling cases, i.e., LT cases
Actual days lost
Time charges
Total days charged
Man-hours
Doctors' cases per shift
Medical costs paid out
Compensation costs paid out

AA. Same as A except it covers the year to date, including the current month. This is for cumulative rates.

Note: Although it is possible, it is not considered practical by the tabulation department to figure the frequency and severity rates by machine.

B. A listing by department of all cases in the current month.

"Why don't you bring a box of tissues when you have a cold?"

BB. A listing by department of all cases so far this year.

CC. A listing so far this year by classification, i.e., what was the man doing when the accident occurred?

EE. A listing of costs paid out this year in order of departments.

To these monthly reports a quarterly is added: *DD.* A listing so far this year by occupation. (Examples of these reports are in Fig. 6.)

The cumulative reports AA, BB, CC, DD, and EE tabulated for December form the basis for our annual safety report.

In addition, for further analysis on an annual basis, listings are made by experience, age, body member injured, agency, unsafe condition, occupation, major accidents, injury, hours, shift, and date of accident.

Since the total cost paid out has been punched into the card by the year's end, these reports show costs in various ways. For example, it is possible to compare the costs of material handling cases with those of machine operation cases, or to compare the costs of finger, eye and foot injuries.

Hazards Behind Glamor

—*From page 31*

type inspection lists were prepared in cooperation with departmental supervisors for the various areas of the company. In addition, safety rules were drawn up by job and department.

Third, employee participation-safety indoctrination was included in the induction procedure for new employees. The NSC Poster Directory was circulated to supervisors for choice as to their applicability in terms of departmental interest. These posters are prominently displayed in the various areas according to the demonstrated need.

Fourth, we frequently evaluated our program and maintained constant vigilance in critical areas. We investigate our accidents in an attempt to find the true cause, whether it be an unsafe act or an unsafe condition, and try to get a specific remedy from the supervisor.

Such remarks as, "How could it be prevented—It was an accident," or "This was a 'freak' in every sense of the word," are now happily in the minority. This shows *progress!*

Fifth, the maintenance of a highly efficient health office is important. We have one of the finest industrial health offices in New York City. It is staffed by competent doctors and nurses with the necessary technical equipment for safeguarding the health of our employees.

We combat public accidents exactly as we combat employee accidents, but with less success. Your chance for getting hurt as a guest in one of our shows in 1958 was 1 in 7,172. On a tour it was 1 in 18,500. Tour guests are paying guests with closer supervision, which is sound evidence that good supervision can and does prevent accidents.

It's a teamwork job, and no single individual or activity can really afford to take too much credit for an outstanding safety record. A salute is due our management, our supervisors, and our employees. We're trying to win the Award of Honor again—and, if we do, we'll have achieved together a safety success that we'd probably never have attained singly.

Calendar Contest Winners for June

"....."

Marlin J. Shorts of Metropolitan Edison Co., York Haven, Pa., won the $100 first prize in the National Safety Council's "Safety Saying" contest with this line:

Keep in shape—it's an All-year affair!

The contest appears monthly on the back pages of the Council's calendar. The theme for the June contest was "Vacation with Safety."

Second prize of $50 went to Mrs. Shirley H. Wilson (Individual Member) of Thornton, Colo. Her entry was:

"Sitty-Slicker" strained heart past repair!

Floyd Snyder, Bethlehem Steel Co., Bethlehem, Pa., won third prize of $25 for this line:

A BOY STOUT unprepared should beware!

The 30 winners of $5 prizes are:

Mrs. Jennie Sano (Individual Member), Lynn, Mass.

H. O. Robertson, Alpha Portland Cement Co., Birmingham, Ala.

The Rev. M. W. Lilie, Emmanuel Lutheran Church, Lake View, Iowa.

Miss Dorothy Montgomery, Firestone Steel Products Co., Detroit, Mich.

Mrs. Tom Clarke, Advertising Checking Bureau, Memphis, Tenn.

Rudy Vuksich, Tektronix, Portland, Ore.

John Klucher, Standard Oil Co. (Indiana), Whiting, Ind.

A. L. Jordan, U. S. Post Office, Tulsa, Okla.

Mrs. Henry Jarvi, Oliver Iron Mining Div. of U. S. Steel Corp., Hibbing, Minn.

Capt. John H. Olson, Everett Police Dept., Everett, Wash.

Erskine Roberts, A.T.&S.F. Ry. Co., Newton, Kan.

Mrs. Irene E. Goodnight, Phelps-Dodge Corp., Morenci, Ariz.

Ira G. Wallace, Milwaukee Railroad, Milwaukee, Wis.

Miss Christine Mitchell, The Mead Corp., Kingsport, Tenn.

Larry Kelley, Yellow Cab Co., Los Angeles, Calif.

Robert A. Harvey, Cleveland Twist Drill Co., Cleveland, Ohio.

Mrs. Charles M. Fay, Narragansett Electric Co., Warren, R. I.

Mrs. Fay Kelley (Individual Member), Savannah, Ga.

Mrs. Cecil Herrington (Individual Member), San Angelo, Tex.

Marion W. Paugh, Goodrich Tire & Rubber Co., Oaks, Pa.

Mrs. Anthony Botti (Individual Member), Canterbury, Conn.

Miss Estelle Schlingloff (Individual Member), Pawhuska, Okla.

Miss Agnes C. Lomax (Individual Member), Fall River, Mass.

Miss Charlotte Carmichael, E. R. Mattingly, Inc., Jasper, Ala.

John J. Sodofsky, Kuhlman Electric Co., Salinas, Calif.

Mrs. Dean F. Garvin (Individual Member), Wallingford, Conn.

L. A. Hughes (Individual Member), Tupelo, Miss.

Isham P. Byrom, Jr., Isaac Litton High School, Nashville, Tenn.

Harold Beseth, The Atlantic Refining Co., Philadelphia, Pa.

Mike Noviscky, Larabee Wire & Equipment Co., Camden, N. Y.

Diary of a Safety Engineer

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There is a sense, I know, in which the sentimental, human side is irrelevant. You have to see an objective fact (male, 22, maintenance mechanic) in a simple objective situation (working on a broken-down machine) ignoring certain codified principles of behavior (failing to lock out the switch of a machine) and producing an accident because another objective fact (male, 62, machine operator) throws the switch, destroying an object (one index finger of a left hand).

You could fill out an analysis with more unsentimental detail: a gruff, hurry-up-and-get-it-done foreman; a crotchety old machine operator with bad hearing; a half-trained maintenance mechanic trying to save time on a rush job.

Yes, you had better eliminate sentiment, if you want to fill out a picture of accident causation.

But the accident analysis is not an end in itself. The prevention of other accidents is the end. And I suspect sentimentalities may be extremely relevant to prevention.

A lost finger sounds petty, trivial, to people who haven't lost one. But a lost southpaw pitcher for the plant team is something people will understand. And if the girls won't understand the tragedy of such a loss, I think they could be made to share the mood of the 18-year-old girl in the treatment room, easing the sorrow of her man by sharing it.

Acting on that idea, I called the plant publication editor and told him the story. He listened till I was through, then barked:

"I would never have suspected it. Does a heart beat inside that machine-guarded chest of yours? Are you getting senile after years of chirruping at me with all the love and enthusiasm of a calculating machine? This is sheer schmalz, my friend, rank, unmitigated schmalz. I'll send Suzy right over. She's a frustrated sob-sister, and this will be a real break for her."

I walked home, not quite sure whether my editor friend had been meaning to compliment or insult me.

Anyhow, I hope those young folks raise up at least one southpaw to bring joy to the heart of his three-fingered father.

Distinguished Service

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Defense Products, Magnolia, Ark.; Industrial Prods. Plant, Los Angeles; Manila, Philippines; Orange, Tex; Retread Shop, Akron, Ohio.

Flintkote Co. (5): Hilo, Hawaii, Canec, Div.; Little Ferry, N. J.; Lockport, N. Y.; Pioneer Div., Portland, Ore; Whippany, N. J.

Food Machinery & Chemical Corp. (2): Niagara Chem. Div., Jacksonville, Fla.; Niagara Chem. Div., Richmond, Calif.

Ford Motor Co. (14): Boston, Parts Depot; Chicago Parts Depot; Des Moines, Iowa, Parts Depot; General Stores & Salvage Serv., Dearborn, Mich.; Jacksonville, Fla., Parts Depot; Los Angeles, Parts Depot; Marine Services, Steel Div., Dearborn, Mich.; Memphis, Tenn., Parts Depot; Minneapolis, Sales District; Oklahoma City, Parts Depot; Parts Depot, Lincoln Park, Mich.; Pittsburgh, Pa., Parts Depot; Seattle, Wash., Parts Depot; Twin Cities Parts Depot, St. Paul, Minn.

Gar Wood Industries, Richmond, Calif., Div.

General Cigar Co., Inc. (4): Htl. Plant, Lancaster, Pa.; Mahanoy City, Pa.; Nanticoke, Pa.; Valley Branch, Kingston, Pa.

General Electric Co. (9): Aircraft Service Shop, Seattle, Wash.; Apparatus Service Shop, Baltimore, Md.; Bucyrus, Ohio, Glass Wks.; Cleveland, Ohio, Quartz Wks.; Glass Technology Lab., Cleveland, Ohio; Lamp Development Lab., Cleveland. Ohio; Mahoning Glass Wks., Niles, Ohio; Pitney Glass Wks., Cleveland, Ohio; Strother Aircraft Service Shop, Aircraft Sect.

General Portland Cement Co., Florida Div., Tampa 1, Fla.

General Refractories Co., Plant, West Decatur, Pa.

Genesco (4): Hanover, Pa.; K. L. Shoe Co.; Leather Shoe Mfg., Carrollton, Ga.; Leather Shoe Mfg., Cowan, Tenn.

Giant Portland Cement Co., Egypt, Pa.

The Glidden Co., Div. 27, Hammond, Ind.

W. R. Grace Co. (2): Davison Chem. Co., Charleston, S. C.; Davison Chemical Co., Joplin, Mo.

Hanna Ore Mining Co., Enterprise Mine, Hibbing, Minn.

Harbison Walker Refractories Co. (2): Cuivre Mine, Pittsburgh, Pa.; Gasconade Mine.

Husky Hi Power Inc., Refining Department, Cody, Wyo.

Ideal Cement Co. (5): Alabama

Div., Mobile, Ala; Louisiana Div., Baton Rouge, La.; Montana Div., Trident, Mont.; Spokane Div., Spokane, Wash.; Utah Div., Devils Slide, Utah.

International Milling Co. (7): Greenville, Tex.; New Prague, Minn.; Newton, Kan.; New Ulm, Minn., Feed; Ponca City, Okla.; Saskatoon, Sask.; St. Paul B, St. Paul, Minn.

International Minerals & Chemical Corp. (5): Hartsville, S. C., Plant; Plt. Food Div., Lockland, Ohio; Research Laboratory, Mulberry, Fla.; Plt., Skokie, Ill.; Plant Food Div., Texarkana, Ark.

International Silver Co., Factory M. Wallingford, Conn.

Interstate Bakeries Corp. (2): Number 2 Chicago, North Chicago, Ill.; Number 31, El Centro, Calif.

Land O Lakes Creameries Inc. (5): Single Plant, Faribault, Minn.; Plant, Luck, Wis.; Single Branch, Milwaukee, Wis.; Single Plant, New Richland, Wis.; Single Plant, Philadelphia, Pa.

Lehigh Portland Cement Co. (6): Alsen, N. Y.; Fogelsville, Pa.; Fordwick, Va.; Iola, Kan.; Metaline Falls, Wash.; Union Bridge, Md.

Lily Tulip Cup Corp. (2): Chicago; Galva, Ill.

Linde Co. Div., Union Carbide Corp. (34): Acetylene, East Chicago, Ind.; Acetylene, Youngstown, Ohio; Albany, N. Y.; Baltimore; Canton, Ohio; Cleveland, Ohio; Combination Plt., Allentown, Pa.; Combination Plt., Altoona, Pa.; Comb Plt., Charlotte, N. C.; Combination Plt., Memphis, Tenn.; Comb. Plt., Mobile, Ala.; Comb, Oklahoma City; Combination Plt., Pittsburgh, Pa.; Crystal Plt., E. Chicago, Ind.; Erie, Pa.; Essington, Pa., Factory; Grand Rapids, Mich.; Milwaukee, Wis.; New Orleans, La.; Norfolk, Va.; North Kansas City, Mo.; Oxygen & Acetylene, Duluth, Minn.; Oxy. Acet., Casper, Wyo.; Oxy. Aux., Salt Lake City, Utah; Oxygen Plt., Duquesne, Pa.; Oxygen, East Chicago, Ind.; Oxygen Plant, Fontana, Calif.; Oxygen, Tampa, Fla.; Roanoke, Va.; S. Charleston, W. Va., Acet. Plant; Speedway Comb. Plt., Indianapolis; Speedway Labs; Spokane, Wash.; Syracuse, N. Y.

Manitowoc Portland Cement Co., Manitowoc, Wis.

Manning Maxwell & Moore Inc. (2): Danbury, Conn.; Tulsa, Okla.

Marquette Cement Mfg. Co., Brandon, Miss.

Medusa Portland Cement Co. (3): Grey Plant, York, Pa.; Toledo, Ohio; Wampum, Pa.

National Biscuit Co. (4): Cheney, Wash.; Dayton Cone, Dayton, Ohio; Denver, Colo.; Rochester, N. Y.

National Broadcasting Co., Station KNBC, San Francisco.

National Distillers & Chem. Corp., Polymer Service Lab., Tuscola, Ill.

National Distillers Products Corp. (3): Bellows Plt., Louisville; Hill Plant, Louisville; Sunny Brook Dist., Louisville.

National Gypsum Co., Millington, N. J.

National Steel Corp., Hanna Iron Ore Div., Hunner Mine, Hibbing, Minn.

Niagara Chemical Div., Food Mach. & Chem. Corp., Burlington, Ont.

Oil Well Supply Div., U. S. Steel Corp., Garland, Tex., Works.

Owens Illinois Glass Co. (6): Corona, Calif., Plant 96; Glasco Products Co., Chicago; Indiana Plt. 25, Terre Haute, Ind.; National Containers of California, Los Angeles; Office 21, San Francisco; Pacific Grove, Calif., Plt. 91.

Peerless Cement Corp., Port Huron, Mich.

Penn Dixie Cement Corp. (4): Buffalo, N. Y.; Plant 5, Nazareth, Pa.; Plant No. 6, Bath, Pa.; West Des Moines, Iowa.

Pictorial News Inc., New York.

Pillsbury Mills Inc. (4): Lima, Ohio; Pillsbury Mills, Minneapolis; Refrigerated Foods, Los Angeles, Calif.; Pillsbury Mills, Wichita, Kan.

Pittsburgh Plate Glass Co. (5): Gas Dept., Ford City, Pa.; Portland, Ore.; Suydam Div., Pittsburgh, Pa.; Works 3, Creighton, Pa.; Works 19, Kokomo, Ind.

The Port of New York Authority: LaGuardia Airport; Teterboro Airport.

Price Brothers & Co. Ltd., Kenogami Paper Mills, Kenogami, P.Q.

Procter & Gamble Co., Cincinnati Toilet Goods Plt., Ivorydale, Ohio.

Radio Corp. of America, Indust. Electronic Prod., Detroit, Mich.

Republic Steel Corp., Pressed Steel Div., Cleveland, Ohio.

Revere Copper & Brass Inc., Riverside, Calif., Mfg. Div.

Reynolds Metals Co. (5): Grottoes, Va., Plant; North Plant, Richmond, Va.; Plant 13, Louisville, Ky.; Sheffield, Ala., Parts Div.; Vernon, Calif., Plant.

Rheem Manufacturing Co. (4): Houston, Tex.; New Castle, Del.; New Orleans; South Gate, Calif.

River Gas Co., Clarksburg, W. Va.

F. S. Royster Guano Co. (3): Bessemer, Ala., Plant; Lynchburg,

Va., Plant; Money Point Plant, South Norfolk, Va.

San Isabel Electric Association Inc., Pueblo, Colo.

Schenley Industries Inc. (3): Assoc. Ky. Distilleries, Akron, Ky.; Jefferson Mill Chess & Wymond, Louisville, Ky.; Jos. S. Finch & Co., Cedarhurst, Md.

Smith Douglass Co., Inc. (5): Albert Lea, Minn.; Kinston, N. C.; San Jacinto Chem. Co., Houston, Tex.; Smith Rowland Co. Inc., Norfolk, Va.; Wilmington, N. C.

Southern Saw Service Inc., Atlanta, Ga.

Southwestern Portland Cement Co. (2): El Paso, Tex.; Fairborn, Ohio.

The Good Company of Canada Ltd., Dominion Plant, St. Lambert, Quebec.

Todd Wadena Electric Coop, Wadena, Minn.

Toledo Lorain & Fairport, Stevedoring, Lorain, Ohio.

Union Electric Co. (3): Granite City Plant, St. Louis, Mo.; Keokuk District, St. Louis, Mo.; Keokuk Power Plant, St. Louis, Mo.

United States Gypsum, Paper Mill Oper., Oakfield, N. Y.

U. S. Rubber Co. (4): Gastonia, N. C., Lastex; Naugatuck Chemical, Baton Rouge, La.; Raeford, N. C., Plant; Scottsville, Va., Plant.

U. S. Steel Corp. (2): Frick District, Everson, Pa., Shop; Frick District, Filbert Shop, Fairbank, Pa.

Universal Atlas Cement Div., U. S. Steel Corp. (2): Fairborn, Ohio; Independence, Kan.

Van Dusen Harrington Co., St. Anthony, Minneapolis.

Victor Chemical Works, Silver Bow, Mont., Plant.

Western Electric Co. (2): Oklahoma City, Plant; Plant Design, Construction Div., N. Y.

Westinghouse Electric Corp., Motor Control, Attica, N. Y.

West Point Manufacturing Co. (2): Lantuck Div., West Point, Ga.; Research Div., West Point, Ga.

Wheeling Public Service Co., Wheeling, W. Va.

Wisconsin Southern Gas Co., Lake Geneva, Wis.

Award of Honor

Celanese Corporation of America, Celco Plant, Narrows, Va.

Ford Motor Co. (5): Chicago Assembly Plant, Ford Div.; Cleveland Engine Plant No. 2, Engine and Foundry Div.; Miscellaneous Departments, Steel Div.; Regional and District Sales Offices, Ford Div.; Hardware and Access., Gen. Off., Rawsonville, Mich.

General Electric Co., Memphis Lamp Plant.

The Manufacturers Light and Heat Co., District No. 6.

Marinette, Wis., Paper Co.

Michigan Consolidated Gas Co., Commercial Office.

Western Electric Co. (2): Greensboro, N. C., Works; Point Breeze Works Mfg. Div.

Westinghouse Electric Corp., Meter Div., Newark, N. J.

West Point Manufacturing Co., Columbus, Ga., Div.

United States Rubber Co., Passaic Plant.

Award of Merit

Allis-Chalmers Mfg. Co. (2): Las Crosse, Wis., Works; Norwood, Ohio, Works.

Aluminum Company of America, Fabricating Div., Massena, N. Y.

American Can Co. (2): Seattle, Wash., Plant 90-A; Stockton, Calif., Plant 110-A.

American Enka Corp., Lowland, Tenn., Plant.

Bethlehem Steel Co. (14): Boston Yard; Supply Div., Tulsa Plant; Bethlehem Quarry, Bethlehem, Pa.; Pittsburgh Erection District; Foamed Slag Plant, Sparrows Point, Md.; Shipbuilding Div., Baltimore Yard, Western Erection District; Bethlehem Limestone Co., Bridgeport, Pa., Quarry; Bethlehem Limestone Co., Naginey Quarry, Milroy, Pa.; Bethlehem Mines Corp., Ellsworth Div.; Bethlehem Pacific Coast Steel Corp., San Francisco Yards; Bethlehem Pacific Coast Steel Corp., Structural Steel Fabrication, South San Francisco; Bethlehem Pacific Coast Steel Corp., Torrance, Calif., Works; Fabricated Steel Construction, Johnstown Plant.

The Borden Co., El Paso, Tex.

C. Brewer & Co. Ltd., Onomea Sugar Co., Papaikou, Hawaii.

Brooks-Scanlon, Logging, Bend, Ore.

The Budd Co., Hunting Park Plant, Philadelphia.

Burgess Battery Co., Freeport, Ill.

Burroughs Corp., Windsor, Ont., Plant.

California Texas Oil Co., Nippon Petroleum Refining Co., Ltd., Yokohama Refinery.

Canada Cement Co. Ltd. (2): Havelock, N. B.; Port Colborne, Ont.

Celanese Corp. of America (7): Chemical Lab, Clarkwood, Texas; Chemical Lab, Summit, N. J.; Pampa, Texas, Plant; Plastic, Belvidere, N. J.; Plastic, Newark, N. J.; Rome, Ga., Plant; Chemical Plant, Bishop, Tex.

Central Maine Power Company,

Central Division, Augusta, Maine.

Central Power and Light Co., Entire Co.

Chain Belt Co., Plant 4, Milwaukee, Wis.

Chrysler Corp. (2): Dodge Truck Plant, Car & Truck Assembly Group, Detroit; Ohio Stamping Plant, Stamping Div.

The Cincinnati Gas & Electric Co., The Union Light Heat & Power Co., Cincinnati, Ohio.

City of Hollywood, Fla., Municipal Government.

City Products Corp., Chicago.

City Utilities of Springfield, Mo.

Columbia Southern Chem. Corp., Barberton, Ohio, Mine.

Container Corp. of America (2): Sefton Fibre Can Co., St. Louis, Mo.; Valley Forge Plant, Oaks, Pa.

Hazel-Atlas Glass, Div. of Continental Can Co., Inc., Plant 403, Washington, Pa.

Corduroy Rubber Co., Grand Rapids, Mich.

Crown Zellerbach Corp., Camas, Wash.

Crown Zellerbach Canada Ltd., Ocean Falls Div., British Columbia.

Dictaphone Corp., Bridgeport, Conn.

Dominion Rubber Co. Limited, Dominion Tire Factory, Kitchener, Ont.

Dow Chemical Co., Allyns Point Div., Gales Ferry, Conn.

Eldorado Mining & Refining Ltd., Edmonton, Alta.

Erie Mining Co., EPTP, Hoyt Lakes, Minn.

Firestone Tire & Rubber Co. (3): Brentford, England; Noblesville, Ind., Plant; Textile Mill, Buenos Aires, Argentina.

Food Mach. & Chem. Corp. (5): Becco Chemical Div., Buffalo, N. Y.; Chemical Div., New York; Niagara Chem. Div., Middleport, N. Y.; Peerless Pumps Div., Los Angeles; Westvaco Chem. Div., Newark, Calif.

Ford Motor Co. (27): Aircraft Engine Div., Chicago; Central Parts Depot, Livonia, Mich.; Cleveland, Ohio, Central Services; Cleveland, Ohio, Engine Plant 1; Cleveland, Ohio, Foundry; Construction & Property Services, Dearborn, Mich.; Dallas, Texas, Parts Depot; Dearborn Assembly Plant, Ford Div.; Dearborn, Mich., Tool & Die Plant; Denver, Colo., Parts Depot; General Parts Depot, Detroit, Mich.; Green Island Plant, Troy, N. Y.; Hardware & Access., Gen. Off., Rawsonville, Mich.; Metal Stamping, General Office, Dearborn, Mich.; Oakwood Property, Allen Park, Mich.; Sandusky, Ohio, Plant; Richmond, Va., Parts Depot; Cleveland Stamping Plant, Metal Stamping Div.; Dearborn Standard Transmission Plant, Transmission and Chassis Div.; Frame Plant, Metal Stamping Div.; General Offices, M-E-L Div.; Long Beach Assembly Plant, Ford Div.; Nashville Glass Plant, Glass Div.; Norfolk Assembly Plant, Ford Div.; Sandusky Plant, Hardware And Accessories Div.; San Jose Assembly Plant, Ford Div.; Ypsilanti Plant, Hardware and Accessories Div.

General Cigar Co. (3): Division St., Kingston, Pa.; Huntington, W. Va., Machine Cigar Mfg.; Mt. Carmel, Pa.

General Electric Co. (7): Aircraft Nuclear Propulsion Dept., Idaho Test Station, Idaho Falls; Range Dept., Appliance Park, Louisville, Ky.; Seaboard Lamp Plant, Newark, N. J.; Service Shops Dept., Aircraft Section; Small Integral Motor Dept.; Allentown, Pa., Plant; Outdoor Lighting Dept., Hendersonville, N. C.

General Mills, Inc., Cereal Plant, Chicago.

General Petroleum Corp., SS "Syosset," Marine Dept.

General Portland Cement Co., Chattanooga, Tenn.

Genesco (3): Genfoam, Nashville, Tenn.; Kleven Shoe Sales, Spencer, Mass.; Leather Shoe Mfg., Atlanta, Ga.

Gladding McBean & Co., China Plant, Glendale, Calif.

Glens Falls Portland Cement Co., Glens Falls, N. Y.

B. F. Goodrich Footwear & Flooring, Watertown, Mass.

Granite City, Ill., Steel Co.

The Griscom-Russell Co., Massillon, Ohio.

Hanna Ore Mining Co., Mississippi Group, Hibbing, Minn.

Harbison Walker Refractories Co. (2): Walsh Works, Audrain City, Mo.; Windham Works, Windham, Ohio.

The H. M. Harper Co., Morton Grove, Ill.

Hercules Cement Co., American Cement Corp., Nazareth, Stockertown, Pa.

Hughes Aircraft Co., Field Service and Support Div., International Airport Site.

Illinois Central Railroad, Chicago.

International Milling Co., Moose Jaw, Sask., Canada.

International Minerals & Chemical Corp. (2): General Office, Skokie, Ill.; Operations, Bartow, Fla.

Interstate Bakeries Corp. (2): Number 21 Four S, Los Angeles, Calif.; Number 23 Weber, Los Angeles, Calif.

Interstate Power Co., Transportation Dept., Dubuque, Iowa.

Kaiser Aluminum & Chemical Corp. (2): Chalmette, La., Works; Ravenswood, W. Va., Works.

Kellogg Co., Battle Creek, Mich., Plant.

Lehigh Portland Cement Co., Mitchell, Ind.

Libby McNeill & Libby, Haiku Plantation, Honolulu, Hawaii.

Lily Tulip Cup Corp. (2): Augusta, Ga.; College Point, N. Y.

Lincoln Engineering Co., St. Louis, Mo.

Linde Co., Div. Union Carbide Corp. (4) Machinery & Equip., Tonawanda, N. Y.; Newark, N. J., Factory; Oxygen, Buffalo, N. Y.; Purox Facto.y, Los Angeles, Calif.

Lukens Steel Co. and divisions, Byproducts—Lukenweld.

MacMillan, Bloedel Limited (2): Alverni Plywood, Div. Port Alberni, B. C.; Pacific Div., Port Alberni, B. C.

Manning Maxwell & Moore Inc., Muskegon Heights, Mich.

Marinette Paper Co., Marinette, Wis.

Marquette Cement Mfg. Co. (2): Cape Girardeau, Mo.; Cement Prod. Plant, Des Moines, Iowa.

Michigan Consolidated Gas Co., Ann Arbor District.

Mid-Continent Pipe Line Co., All Operations, Tulsa, Okla.

M.S.A. Research Corp., Callery, Pa.

Mississippi Power & Light Co., Jackson, Miss.

National Broadcasting Co., WRCV, WRCV TV, Philadelphia, Pa.

National Lead Co. of Ohio, Feed Materials Production Center, Fernald Area, A.E.C.

The National Supply Co., Subsidiary of Armco Steel Corp., Etna, Pa.

National Tea Co., Minneapolis, Minn., Branch.

New York City Board of Transportation, Brooklyn, N. Y.

North American Aviation Inc. (2): Columbus, Ohio; Rocketdyne, Los Angeles.

North American Cement Corp., Catskill, N. Y.

Northwestern States Portland Ce-

ment Co., Mason City, Iowa.

Oak Ridge National Laboratory, Union Carbide Nuclear Co., Oak Ridge, Tenn.

Ohio Edison Co., Toronto Power Station.

Owens-Corning Fiberglas Corp., Anderson, S. C.

Owens Illinois Glass Co. (5): Central Mold Shop, Oakland, Calif.; Kimble Glass Div., Warsaw, Ind.; Mfg. Glass 12, Gas City, Ind.; Research, Toledo, Ohio; Valdosta, Ga., Mill.

Pabst Brewing Co., Milwaukee, Wis.

Penn Dixie Cement Corp. (3): Clinchfield, Ga.; Kingsport, Tenn.; Plant J, Nazareth, Pa.

Pennsylvania Salt Manufacturing Co., Cornwall Heights, Pa.

Pillsbury Mills Inc. (2): Globe Mills Div., Astoria, Ore.; Pillsbury Mills, Wellsburg, W. Va.

Pittsburgh Consolidation Coal Co. (4): Bradford 1 Mine, Cadiz, Ohio; Georgetown Prep. Plant, Cadiz, Ohio; Hanna Coal Co., Glen Castle 6 Mine; Piney Fork 1 Mine, Cadiz, Ohio.

Pittsburgh Plate Glass Co. (4): Ditzler Color Div., Detroit; Milwaukee, Wis.; Torrance, Calif.; Works No. 25, Greensburg, Pa.

Portland General Electric Co. (2): Maint. & Const. Dept., Portland, Ore.; Portland, Ore., Plant.

M. C. Price Co. (2): Spread 1; Spread 3, Neepawa, Man., Canada.

Reeves Brothers, Inc., Vulcan Plant, Buena Vista, Va.

Republic Steel Corp., Cleveland, Ohio.

Reynolds Jamaica Mines Ltd., St. Anne, Jamaica BWI.

Reynolds Metals Co. (2): Phoenix Extrusion Plant, Phoenix, Ariz.; Sheffield, Ala. Parts Div.

Rheem Manufacturing Co., Carrollton Station, New Orleans.

Rocketdyne, Division of North American Aviation, Inc., Canoga Park, Calif.

Ryan Aeronautical Co., Electronics Div., San Diego.

Schenley Industries, Inc., Geo. T. Stagg Co., Lebanon, Ky.

Joseph E. Seagram & Sons, Inc., Lawrenceburg, Ind.

Shell Chemical Corp., Torrance, Calif., Plant.

Shell Development Co., Emeryville Research Center.

Shell Pipe Line Corp., Hobbs, N. M., District.

A. O. Smith Corp., Milwaukee, Wis., Works.

Southern Railway System, Pinners Point Agency.

Sperry Microwave Electronics Co., Division of Sperry Rand Corp., Clearwater, Fla.

St. Regis Paper Co., Panelyte Div., Kalamazoo, Mich.

Sylvania Electric Products Inc., Lighting Div., Waldoboro, Maine.

Tennessee Valley Authority, Office of Power, Chattanooga, Tenn.

Texaco Trinidad Inc., Pointe a Pierre, Trinidad, West Indies.

Tidewater Construction Corp., North Charleston, S. C.

The Torrington Co. (2): Broad Street Plant, Torrington, Conn.; Excelsior Plant, Torrington, Conn.

Union Carbide Chemicals Co. (4): Technical Center, South Charleston, W. Va.; Texas City, Texas, Plant; Seadrift Plant; South Charleston, W. Va., Plant; Institute, W. Va., Plant; Diamond, W. Va., Plant.

Union Carbide Nuclear Co., Oak Ridge, Tenn., Gaseous Deffusion Plant.

Union Electric Co. (3): Cahokia Plant, St. Louis; Meriamec Plant, St. Louis; St. Louis Plant.

Union Oil Company of California, Los Angeles Refinery, Wilmington, Calif.

United Aircraft Corp., Pratt & Whitney Aircraft Div., E. Hartford, Conn.

U. S. Dept. of Commerce, Maritime Admin., Atlantic Coast Dist., New York.

United States Rubber Co. (2): Naugatuck Chemical Div., Baton Rouge, La., Plant; Santa Ana, Calif.

U. S. Steel Corp. (4): Frick District, Collier Mine, Uniontown, Pa.; Frick District, Robena No. 2 Mine, Carmichaels, Pa.; Frick District, Robena Preparation Plant, Greensboro, Pa.; Fairfield Coke and Coal Chemical Works, Tennessee Coal & Iron Div.

Vierling Steel Works, Chicago.

Westinghouse Electric Corp. (4): Electric Appliance Div., Mansfield, Ohio, Sunnyvale, Calif., Mfg. Div.; Aviation Gas Turbine Div., Kansas City, Mo.; Electronic Tube Div., Elmira, N. Y.

West Point Manufacturing Co., Columbus, Ga., Mill.

Weyerhaeuser Timber Co., White River Branch Plant.

Wilson Paper Box Co., Inc., Richmond, Va.

Wyandotte Chemicals Corp. (2): Wyandotte, Mich.; JB Ford Div., Wyandotte, Mich.

Industrial Progress Brings New Vision Problems

Vision specialist says industry must bring its thinking up to date on eye problems

Big business, in spite of its fast-paced growth, is failing its employees by neglecting to recognize their visual requirements, declared Dr. George W. Davis, Fellow Distinguished Service Foundation of Optometry, and Research Visual Consultant for the Sales Analysis Institute, in a talk at the national meeting of executive management and sales engineers in Chicago.

Decrying antiquated industrial visual testing devices, Dr. Davis pointed out that industry is losing some of its most valued workers because of visual problems. In the present industrial picture, eyeglasses are not the simple answer to eye difficulties that they were once thought to be.

The stepped-up production of industry, its closer levels of tolerance, its expanding competitive market requirements, and its over-all demand for increased accuracy, have produced a stress and strain which makes for a large and varied crop of visual problems. More employees than ever before are requesting transfers from inspection jobs and the work of overseeing complicated machinery—mainly because of eye difficulties. Good replacements are hard to come by.

Today, declared Dr. Davis, almost all employee visual problems are the result of work conditions. Certain jobs develop certain types of eye problems. Extreme concentration on a tedious near-point task for a prolonged period of time may result in a disabling "dynamic" visual condition. The word "dynamic" in this sense means that a relatively small visual discomfort gradually becomes more and more severe throughout the working day, causing fatigue factors that affect the rest of the system, decreasing physical ability, and debilitating mental alertness.

A pair of "static" glasses—prescribed only at the point in this situation when the employee is in the eye doctor's office—cannot keep up with or correct a "dynamic" problem. The employee who tries to adjust finds his originally simple problem of eye strain or fatigue aggravated into a permanent condition of visual deformity known to eye doctors as a "grief case"—a patient not able to see clearly with or without glasses.

This nagging problem goes beyond the jurisdiction of the routine eye examination by the company's industrial eye doctor. To solve it Dr. Davis points to the gradual acceptance by industry of an industrial visual consultant who serves as an adviser to management as well as to the eye doctor on the job.

From data collected in his intensive study of the industrial problem, Dr. Davis cited a few of the facts he has discovered. Many jobs that *look* visually difficult, he says, are not necessarily so, as for example, a transcribing job. It might be efficiently handled by a blind typist. Certain jobs of molding and fitting might be easily performed by a blind-

"I had a hard time finding one in your favorite color."

folded person. On the other hand, he explains, many jobs that look easy may turn out to be almost unreasonable when measured by visually impedimental standards.

Some work is intensely fatiguing over a relatively short period of time, as for example, the work of transcribing logarithm tables. After 15-20 minutes the transcriber may be utterly fatigued visually, and an immediate visit to the eye doctor might result in a prescription for glasses which in the long run would prove detrimental.

An increased demand above normal and a strong desire not to make errors can cause severe visual fatigue. Certain types of complex office equipment—I.B.M., Burroughs, Remington Rand—though thoughtfully manufactured to keep visual fatigue at a minimum, have a tendency to build a visual impediment in employees who work with them over a long period.

Standard examinations of some cases of visual impairment, Dr. Davis says, easily lead the company doctor to the diagnosis of "myopia" in which symptoms are much the same as in cases of visual fatigue, and glasses prescribed when the patient is in this state of visual fatigue can bring on actual myopic symptoms. In his own correction of such mis-diagnoses, and with proper treatment, Dr. Davis states that he has restored thousands of cases to normal vision.

The body too plays a great part in causing visual fatigue. Physical tension causing visual fatigue in stenographers is sometimes eased by simply moving the work from the right to the left side of the desk. Other seemingly minor alterations in habit patterns have proved highly beneficial. The beneficial effects of recreational activity, such as bowling, swimming, baseball, and golf, have already been recognized by industry.

Strongly believing that industry can do much to help itself and to help employees help themselves in meeting these visual problems, Dr. Davis recommends individualized help for each industrial organization. The real job, he says, is to get management and employees alike to understand and learn to control certain misunderstandings and to eliminate many false notions about visual fatigue.

Fabric Fire Wall For Jet Bomber

A new fabric, which has earned a better rating for heat and flame resistance than stainless steel, is one answer to the demand for materials that meet the stepped-up requirements of America's "hottest" jet bomber.

The material—an asbestos base fabric coated with "Viton" synthetic rubber and reinforced with wire of "Inconel" nickel-chromium alloy—is used for fire wall seals in the swept-back delta wing of the supersonic Convair B-58 "Hustler."

One of the problems facing designers of the B-58 was maximum flame resistance. There are four jet engines, thousands of gallons of highly flammable fuel, tunnels for hydraulic, electric, and fuel lines and air-conditioning ducts, all part of the wings.

A basic principle of controlling flame in military aircraft is confining any blaze to give vital time to combat the fire, complete a mission, or evacuate the plane crew safely. Any material selected must meet exacting requirements for flame resistance, but must also meet many other demands.

It must retain its properties in operating temperatures of over 500 F. It must be easily fabricated into exact fitting units, be flexible so that it can be worked into out-of-the-way corners of the plane structure and stand up under vibration in flight. It must resist damage by oils, greases, and jet fuels. It must not absorb volatile fuels which could vaporize on the reverse side, thus spreading rather than confining the flame. It must be in adequate commercial supply.

The answer to these needs was supplied after years of development work by engineers of Raybestos-Manhattan's General Asbestos and Rubber Division, working with designers and engineers of Convair's Fort Worth Plant. Pioneers in neoprene coatings over asbestos and wire of "Inconel" nickel-chromium alloy, Raybestos-Manhattan had developed a widely used aircraft fire wall serviceable in operating temperatures up to 250 degrees Fahrenheit.

The development of "Viton" synthetic rubber made possible a fabric capable of meeting the new higher temperature demands. The resistance of "Viton" to heat, chemicals, jet fuels, and solvents is in a range completely new in the elastomers field. But considerable study was required before a successful fabric could be produced.

As a result of extensive testing, the fabric of reinforced asbestos coated with "Viton" synthetic rubber was specified for fire walls in the wings of the B-58 "Hustler."

Beware of "Gyp" Extinguisher Service

A little-known racket is endangering peoples' lives all over the country, the National Fire Protection Association was told at its recent annual meeting.

The "gyp" servicing of extinguishers—refilling them with worthless materials or not refilling them at all—was described by C. H. Fredriksen, executive secretary of the United Fire Equipment Service Association.

After a firm of "fast-buck" operators had serviced extinguishers in a leading hotel and large hospital in one city, investigation showed that 92 of the hotel's 100 extinguishers were inoperative, and a like percentage in the hospital were useless.

To check another suspected service firm, soda-acid extinguishers were charged with an unusual solution—salt water in the acid bottle and lemonade in the tank. The normal charge is acid and soda solution, which when mixed by turning the extinguisher upside down, forces out a steady stream of liquid.

After the short-cut operator had inspected and serviced the extinguishers, and collected his money, they still contained this revolutionary combination of extinguishing agents: salt water and lemonade.

In another case "servicing" of the largest building in the area consisted of filling the extinguishers with a solution that was years old and highly diluted.

Another type of racketeer is the "Lone Ranger" or "bucket boy." They range through buildings offering to repair and recharge extinguishers, using cheap, worthless materials and parts.

The President's Medal

Awards made by the National Safety Council for successful application of artificial respiration

C. E. Cox, meter and well attendant, United Gas Pipe Line Company, Yorktown, Tex.—gas asphyxiation. Certificate of Assistance to W. E. Lakey.

THOMAS A. DONOGHUE, meterman Public Service Electric and Gas Company, Elizabeth, N. J.—gas asphyxiation.

MICHAEL SUKASKAS, foreman, The L. H. Meader Company, Cranston, R. I.—electric shock.

PELEGRIN BUSQUETS, construction engineer, Puerto Rico Water Resources Authority, San Juan, Puerto Rico—electric shock. Certificate of Assistance to FEDERICO COSTA CAPIFALI.

ERNESTO L. SANTIAGO, lineman, Manila Electric Company, Manila, Philippines (President's medal with bar)—two resuscitations from electric shock.

ROY E. FORMAN, plant manager, Lee County Service Company, Amboy, Ill.—electric shock.

Urge Use of New Fire Retardant Materials

Incombustible coatings used over wood will delay flame spread, according to the Flintkote Company. Latex concrete is one example of the newer materials. Latex concrete, which is as incombustible as concrete, is a mixture of cement, sand, or pebbles with a resin latex instead of water for the liquid component. The latex offers superior adhesion, non-brittleness, and non-cracking characteristics as compared with ordinary concrete. It can be spread as thin as ¼ in. over wood corridors, steps, and floors, providing great resistance to wear and water as well as fire. It is economical and easy to apply with a trowel.

A similar mixture of cement, sand, or pebbles and a special asphalt base clay emulsion binder has been a standard floor resurfacer to meet ravages of traffic in factories for many years. It is called asphalt mastic and will not support combustion even in the hottest fire. This type served as a major retardant to fire spread particularly in London during World War II. Combustible wood areas were surfaced to resist incendiary bombs. This material is effective in covering wood as an underlayment for decorative asphalt tile and other floor coverings of a fire-resistant nature.

The third and latest innovation in fire-resistant surfacing for trowel finish over wood is an epoxy resin mixture with mineral fillers which hardens with the addition of a catalyst or setting agent. This material is super-tough and crack resistant even when applied in coatings as thin as ⅛ in.

Safety Week to Stress Hard Hats

The Institute of Scrap Iron & Steel Inc., national association for the iron and steel scrap industry, has announced the establishment of an annual safety week in the scrap industry, to be held this year during the week of October 19. The theme will be "Hard Hats."

The theme "Hard Hats" was chosen for the first year because of the importance of head protection in scrap yards. Each year an additional item of safety equipment will provide the theme of Safety Week.

The Institute currently holds an annual safety contest for its members starting in January and concluding October 31. In addition, the Institute publishes a monthly management bulletin on safety, as well as special bulletins stressing safety in the scrap yard. Under the impact of the safety program, many member companies have been successful in reducing accident rates, thereby making substantial cuts in compensation insurance costs. The Institute has won two awards from the National Safety Council for its safety programs.

High Pressure Lab Designed

Uses closed-circuit TV, remote-controlled

JOHN STENBERG, laboratory head, adjusts fitting near top of high-pressure reactor in one of isolated reaction cubicles. Closed-circuit TV camera at left picks up reading on reactor pressure gauge and transmits it to TV screen at control panel.

A new high-pressure laboratory, called one of the most advanced of its kind and a model of safe construction, was recently put into operation by the Eastman Kodak Company in Rochester, N. Y.

Designed for research into new chemical reactions under extra-high pressures up to 30,000 psi, the laboratory represents "an optimum combination of safety and convenience" according to John F. Stenberg, laboratory head. The laboratory's pressure limit compares with the 30 lbs. of pneumatic pressure in an automobile tire, or with a peak 5,000 lbs. usually considered high pressure by chemists.

The new unit specializes in the production of small quantities of chemicals that cannot be made under ordinary pressure conditions or which would require unusually long reaction times, Stenberg said.

Need Warnings on All Harmful Chemicals

Warnings on labels of all products containing hazardous chemicals is the objective of a model law formulated by the American Medical Association and recently introduced into Congress. (H.R. 7352).

Speaking before the Association of Food and Drug Officials of the United States, Bernard E. Conley, Ph.D., secretary of the AMA Committee on Toxicology, declared, "If we are to educate people to read labels and obey their warnings, we must require identification of hazardous ingredients on all products, not merely on certain classes of chemicals, such as pesticides."

While three-quarters of these products contain substances which are moderately toxic or worse, most states and the federal government have no laws to require them to carry warnings or to declare toxic or other harmful ingredients.

for Safety

processes in thick-walled cubicles

CHEMIST regulates high-pressure reaction from remote control panel. TV screen in foreground registers pressure in reactor, which is located in cubicle behind 20-in. concrete wall at rear of panel. Smaller cubicles are located behind each of other three panels shown in picture.

The one-story laboratory building contains five safety cubicles, each equipped for two chemical reactors. Three walls of each cubicle are of 20-in. reinforced concrete. The fourth wall, which is detachable, is of thin plastic, mounted on breakaway pins that will shear off under pressure.

Outside the plastic wall is a protective curtain of steel netting and further protection of an earthen barrier. Access to each reactor room is by a steel door, interlocked to stop stirring and heating operations safely when the door is opened.

Chemists view the reactors and their pressure gages safely over closed circuit TV. Thus no pressure or gas lines penetrate the wall between operator and reactor.

The laboratory, 40 ft. wide by 100 ft. long, required 1,055 tons of concrete in its construction.

Issue Data Sheet on Vinyl Acetate

Safe handling techniques for industrial users of vinyl acetate, a colorless flammable liquid, are described in a new chemical safety data booklet published by the Manufacturing Chemists' Association.

Sections of the MCA's new safety data sheet cover the physical properties of vinyl acetate, potential hazards, engineering control, employee safety, fire fighting, labeling, transportation, handling, storage, and first aid.

The more than 85,000 tons of vinyl acetate produced annually in the U.S. are used in the formulation of such end products as adhesives, coatings, plastics, rubber, textiles, glass, and leather.

Copies of SD-75, Vinyl Acetate, may be obtained at 30 cents each from Manufacturing Chemists' Association, Inc., 1825 Connecticut Avenue, N. W., Washington 9, D. C.

Launch Study of School Fire Safety

The National Academy of Sciences—National Research Council, a private body of research scientists and engineers, has undertaken a special study of school fire safety. The study was announced by the organization's president, Dr. Detlev W. Bronk. The study will be conducted by the Building Research Advisory Board (BRAB) with joint sponsorship of the Committee on Fire Research (CFR)—two Academy-Research Council groups—under a grant from Educational Facilities Laboratories, Inc.

Chief purpose of the project is to assemble, evaluate, and publish information on the question of fire safety and its dual relationship to the economics of school structures and the educational needs of communities.

A committee, composed of individuals competent in the fields of education, architecture, and engineering, fire protection, fire research, building research, codes, and school and municipal administration, has been appointed to assume responsibility for the conduct of the study, the organization of a summing-up conference in the fall, and the later publication of an open report.

Chaired by Norman J. Schlossman, a member of BRAB and a partner in the architectural firm of Loebl, Schlossman and Bennett, Chicago, Ill., the study committee met July 20 at the Academy to define the objectives and scope of the study and to select specialized areas of concern for later investigation by individual panels.

Responding to the multiple pressures of rapidly expanding school populations, greater competition for the tax dollar, and the consequent demand for utilization of antiquated and substandard school buildings, school officials throughout the nation are becoming increasingly concerned by a real dilemma facing them.

How, in the light of the tremendous financial burden involved, can they support the costs of eliminating fire hazards in existing structures, achieve the required degree of fire safety to occupants in new construction, and at the same time provide for the developing educational needs of the community? When does a school building become obsolete, and how much expenditure is justified in rehabilitation for fire safety?

These and other questions of like nature pose real and controversial problems. Their solution requires school board members, administrators, and a variety of community agencies to make value judgments having great impact upon the continued welfare of school children.

National organizations which have been invited to lend assistance and who have indicated their willingness to cooperate in this study include the American Association of School Administrators, American Institute of Architects, American Municipal Association, Associated General Contractors of America, Association of School Business Officials of the U. S. and Canada, Building Officials Conference of America, International Association of Fire Chiefs International Conference of Building Officials, National Board of Fire Underwriters, National Bureau of Standards, National Council of Independent Schools, Inc., National Council on Schoolhouse Construction, National Education Association, National Fire Protection Association, National Safety Council, National School Boards Association, The Producers Council, Inc., Southern Building Code Congress, U. S. Chamber of Commerce, and the U. S. Office of Education.

The study will lead to a report following a fall conference of selected participants. Such a publication should assist individuals of public responsibility to make the necessary decisions, district by district, school by school, that are required to protect against loss of life by fire, giving consideration to existing or proposed codes, standards, laws and ordinances, relative costs; the educational implications of physical alterations to existing structures; and the implications to design criteria for proposed structures.

Color Routs Olive Drab At Army Post

Red bulldozers, lavender graders, and aqua colored walls may seem a bit incongruous on an army post, but they're just color samples of visual life at Fort Belvoir, Va., where the traditional olive drab has been forced into full retreat.

Probably the most colorful army installation this side of a Hollywood set, Fort Belvoir is home to the U. S. Army Engineer Center, and the army engineers have been wielding their paint brushes with telling effect. Colors were selected to aid environment, instruction, safety, or motivation. Ten thousand officers and enlisted men are trained at Belvoir each year, and the authorities have found that the rainbow hues provide a pleasant, conducive atmosphere for study and work.

A visitor to the maintenance and repair branch would find air systems painted yellow, cooling systems painted green, and fuel lines painted red. In the liquid oxygen area, brown is used to represent nitrogen, blue is for air, light green is for crude oxygen, and dark green is for liquid oxygen.

The engineer school uses colors to advantage in explaining the intricate parts and functions of carburetors, generators, and the like. Movement of small parts can be easily detected when the parts themselves are painted in bright or checkered colors. The intensity of a given color often signifies degree of motion. "Without colors," say the authorities, "many students would be knocked out in the first round."

Bright colors and pastels are used on classroom walls, sometimes in hues that would shock professional decorators. But army students find the colors help their absorption of knowledge.

In the realm of safety, red, of course, is the basic color for fire-protective equipment. Yellow is used for marking physical hazards and bespeaks caution. First-aid equipment, other than fire-fighting equipment and ambulances, carry green. Black and white denotes traffic markings and are used in combination with yellow for street and highway markings.

Blues, greens, reds, and yellows explain the varied and intricate parts of the power unit for the Nike Ajax elevator. Reds, greens, and yellows cover the bodies of gasoline engines, while blues and purples are used on the air compressing machines.

TV Eye Sees Everything

Thanks to a television system 150 employees of the Gulf Oil Corporation's Girard Point refinery in Philadelphia now have more convenient access to their working area. Savings in distance and walking time are considerable.

Formerly, these employees had to take a roundabout route to their jobs through a main gatehouse. Installation of the TV system, developed by General Precision Laboratory, now permits identification of employees using an auxiliary gate 350 ft away, without diverting a member of the guard force.

GUARD at Gulf Oil Corporation's Girard Point refinery in Philadelphia uses closed-circuit TV system to check personnel at remote gatehouse. One camera picks up split-screen image of face and badge. Another camera keeps employee in view while passing through turnstile. Pictures are displayed on monitors to guard, who releases gate after making proper identification.

The closed-circuit TV cameras serve as *eyes* and transmit views of the area to two 17-in. monitors in the main gatehouse. One monitor shows a split-screen image of the worker's face and badge, as he enters. The other monitor keeps him in sight while passing through the turnstile in either direction.

After proper identification has been made, the guard presses a button to release the electrically-operated gate. An intercom system is used to answer questions.

"We've reduced our scrubbing time from 70 to 7 man-hours ... and our floors have never before been so clean!"

— says Foreman of
BURNY BROS. BAKERY, CHICAGO

Garage and stockroom floors in Burny Bros. large, modern bakery get daily scrubbing with a *Job-Fitted Combination Scrubber-Vac* and *Setol Cleanser*

THEY'RE an unbeatable team to speed the cleaning of oily, greasy floors. *Here's why:* A *Scrubber-Vac* completely mechanizes scrubbing. It applies the cleanser, scrubs, flushes if required, and picks up (damp-dries the floor) — *all in one operation! Job-fitted* to specific needs, a *Scrubber-Vac* provides the maximum brush coverage consistent with the area and arrangement of the floors. Its teammate, *Setol Cleanser,* is specially designed for the greater speed of *combination-machine-scrubbing* ... emulsifies grimy oil and grease *instantaneously* for fast, thorough removal by the machine's powerful vac. Moreover, *Setol* retains its strength longer than average alkaline cleansers. This, too, speeds the cleaning process ... saves on materials ... and cuts operating time of the machine, which in turn reduces labor costs. The *Scrubber-Vac* shown above is *Finnell's 213P,* for heavy duty scrubbing of large-area floors. It's *self-propelled,* and has a 26-inch brush spread. Cleans up to 8,750 sq. ft. per hour (and more in some cases), depending upon condition of the floors, congestion, et cetera. (The machine can be leased or purchased.) *Finnell* makes a full range of sizes, and *self-powered* as well as *electric* models ... also a full line of fast-acting cleansers. In fact, *Finnell makes everything for floor care!* Find out what *you* would save with *combination-machine-scrubbing.* For demonstration, consultation, or literature, phone or write nearest *Finnell Branch* or Finnell System, Inc., 2209 East Street, Elkhart, Indiana. Branch Offices in all principal cities of the United States and Canada.

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Product announcements in this section are reviewed for compliance with the advertising policy of the NATIONAL SAFETY NEWS. Inclusion should not, however, be construed as endorsement or approval by the National Safety Council.

Color-Code System

Push-button color-coding for safety and production is featured in "Aerosols for Industry." Nineteen self-spraying colors are offered, plus two marking paints. The push-button cans are quick, clean and can be used for labeling pipes, valves, and for spotlighting moving parts and other safety hazards and for identifying emergency equipment.

The range of colors fits any present coding system. The colors are fast-drying and permanent, and are tested for quick recognition under different light.

Industrial Supply Div., Sprayon Prod. Inc., 2075 E. 65th St., Cleveland 3, Ohio (Item 301)

Head Lamps

Model 281-GB Stainless Steel Commando Safety Approved Hand Lamp (left) is a powerful dry-cell spotlight. Tested by the Bureau of Mines, it throws a 1500-ft. beam, with 15,000-beam candlepower.

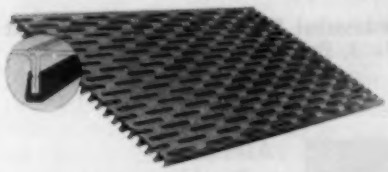
It has focus that can be adjusted to give a ½-mile beam or a broad diffused light. The lamp is also available with a reflector. It uses a 6-volt double pack battery.

Another similar lamp is the rechargeable Wheat Safety Hand Lamp, Model 271 (right), approved by the U. S. Bureau of Mines and the U. S. Coast Guard, Class 1, Group D.

This portable light has an adjustable focus to give a broad diffused light as well as a penetrating light. The housing of the light is of aluminum.

The battery is made of Butalite. The unit requires no opening of terminals or changing of solution for charging, which is done by plugging directly from the charger into the light's receptacle.

Koehler Mfg. Co., Marlboro, Mass. (Item 302)



Aluminum Grating

A light-weight, strong extruded aluminum grating features a snap-lock method of field assembly which eliminates welding.

The grating is suitable for pedestrian walkways, including platforms, scaffolding, balconies, and catwalks. It is available in 1-in., 1¼-in. and 1½-in. thicknesses, and 6-in.-wide extrusions in any specified length.

The snap-lock method of fastening adjacent extruded sections consists of an aluminum clip which is hammered into place. Any width of panel can be assembled in the field or at the job site.

No power tools or welding equipment is required. The aluminum clip ties together with interlocking I-beams on the mating edge of each section, and remains under tension to insure tightness and dimensional stability.

It is suitable for applications requiring lightness in weight, corrosion resistance, low maintenance, non-sparking and non-slippage.

Special Products. Dept., Read Standard Div., York, Pa. (Item 303)

Fire-Resistant Hydraulic Fluid

Sunsafe is a water-in-oil emulsion-type hydraulic fluid that possesses, in addition to its fire-resistant properties, a viscosity index (130) with film strength at high temperatures, thermal stability and antiwear and antirust characteristics.

In the top illustration, with the MIL-L-7100 spray test, attempts are made to

ignite the fluid. When subjected to this test repeatedly, the product does not flash or support combustion as compared with the regular fluid in the lower photo.

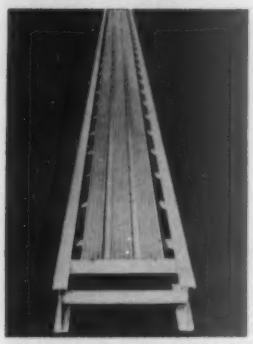
Sunsafe may be used in any hydraulic system where a fire-resistant-type fluid is considered desirable or necessary and at pressures up to 2000 psi and operating temperatures up to 150F.

The fluid offers lubrication with dependable fire protection, reducing fire hazards to personnel and equipment. This product is made in two grades—one for industrial machines and systems, the other for hydraulically operated mining machinery.

The fluid is made from refined base oil compounded to form a stable water-in-oil emulsion with high service characteristics. The oil-water ratio is 60:40.

The thermal stability of Sunsafe resists thermal breakdown, reportedly contributing to lowered maintenance costs and higher productivity.

Sun Oil Co., Industrial Prod. Dept., 1608 Walnut St., Philadelphia 3, Pa. (Item 304)



Aluminum Decking

Side Sway has been practically eliminated in Sure Foot safety knurled hat section aluminum decking.

This decking is anchored to the chassis by rivets. The knurls have a rough surface to prevent slipping. Each end has a red anodized aluminum handle which serves as a danger signal.

Made of I-beam structural aluminum extruded side rails with cross-member rungs, secured by the patented BOSS rung joint, the planks and swing stages are strong and lightweight walkboards.

The planks are 12 in. wide, and the swing stages are 20 in. and 24 in. wide. One of the two-men models have been UL-tested and approved.

Louisville Ladder Co., 1101 W. Oak St., Louisville 10, Ky. (Item 305)

Neoprene Gloves

Neoprene-coated industrial gloves reportedly are more flexible than other oil-resistant gloves. This is due to a process, in which a knitted jersey shell (glove-like liner) is coated with neoprene, a synthetic rubber with outstanding resistance to many chemicals, acids, oils and greases.

These gloves, Flexiprene, reduce hand fatigue, because they require less effort to bend the fingers than do other Neoprene-Coated Gloves. The knitted construction makes it possible to have the seams on the side of the fingers, where they are less likely to chafe or split.

Neoprene-coated gloves are used in the food, dairy and fishing industries, in chemical and petroleum processing plants for handling corrosive and oily materials.

Hood Rubber Prod., Div. of B. F. Goodrich Co., Watertown, Mass. (Item 306)

Battery Powered Scrubber-Vacuum Combination

Mark 20 and Mark 26, battery powered scrubber-vacuum floor maintenance machines, are engineered to clean up to 21,600 sq. ft. of floor per operating hour.

The quiet action of the battery-driven machines makes them useful in schools, hospitals, institutions or other places where noise reduction may be a factor.

The Mark series is powered by four 6-volt, 25-plate batteries with an operating life of 6 to 8 hours. The length of the operating cycle between chargings is dependent on the floor condition.

A small compact battery charger is included. The Mark 20 has two 11-in. brushes which will clean a path 20 in. wide. The Mark 26 has two 13-in. brushes for cleaning a 24-in. width. The Mark models have a 17-gal. solution dispenser tank and a 19-gal. pick-up tank. Both models have counter rotating brushes to eliminate torque.

Finnell System, Inc., 500 E. Street, Elkhart, Ind. (Item 307)

Bottle Breaker

Model 1000 Bottle Breaker will break a tiny vial or a gallon jug. The body is Tenzaloy # 356, "Z" metal. The impeller is made of Manganese Moly Type Steel.

This model is shipped with a 55-gal. steel drum but has its own adapter for a No. 2 can. The motor is enclosed with automatic overload protection. The self-closing hopper prevents flying glass particles.

Rescor Industries, 18 W. Broad St., Mount Vernon, N. Y. (Item 308)

Hand Tools

Rambar is hand tool designed to forcibly open wooden or metal doors during a fire or in demolition work. It can also be used for emergency openings through brick, stucco or wooden walls.

Its manufacturers claim it has the power and speed of an air-hammer and can open jammed doors in less than 15 seconds, usually without injury to the door.

Rambar has a tempered tool steel cutting edge and works on the impact principle. The outer handle slides up and down the shaft. The operator grasps the hand grip with one hand and slides the handle with the other, placing the chisel point between the door stop and the casing just above or below the lock. The sliding handle is extended and manipulated by pushing the handle to the closed position. The operation spreads the door and casing far enough apart to release the lock.

This tool can also be used for many other jobs, such as a crow-bar or a battering ram.

Sammons & Sons, 2911 Norton Ave., Lynwood, Calif. (Item 309)

Germicidal Cleaner

A soapless detergent, germicide combination cleans, disinfects and deodorizes in one operation. Di-Crobe Germicidal Cleaner is available for office buildings, factories, etc.

The cleaner does not require rinsing and leaves an active germicidal layer on surfaces cleaned. It can be used on inanimate surfaces not harmed by water, and is effective in any kind of water. This product can be applied with a mop, sponge or rag.

Huntington Laboratories, Inc., Huntington, Ind. (Item 310)

Flashers

NRB Series Flashmasters are designed for heavy-duty, high-output circuit applications.

They are available with either 2-way 4-in. lenses or a 360-degree fresnel dome. The lamp is a neon coil. Continuous operating life of the units is more than two years. They use any standard 6-volt lantern battery, and this battery-life averages 8 weeks under 24-hour operation.

The construction is of 18-gauge drawn steel case and a separate sealed and shock-mounted inner case protecting the mechanism. The lamp, resiliently-mounted, is said to be almost break-proof.

Carpenter Mfg. Co., Bradley St., Somerville 45, Mass. (Item 311)

Air-Operated Hoists

Series 700 Load Lifter Air Hoists are heavy-duty, cable type hoists, available in a selection of sizes from 1 through 15 ton capacity.

The hoists are designed for applications where corrosive or dirty conditions create maintenance problems, or explosive atmospheres present a safety hazard for hoists with electric motors. This hoist has variable lifting speeds from a creep to full-rated speed, and a one-hand pendant control cord for load control. Motor replacements are reduced because they cannot burn out from overloads, which makes the motor slow or stall. The hoist can be serviced while suspended in air.

Design, drum and sheaves are large diameter, prolonging cable life; the lower block is enclosed for safe handling; a fool-proof upper limit switch prevents over-travel of the lower block; and a five-cylinder, radial, piston-type air motor has overlap of power impulses for even torque at all speeds.

Manning, Maxwell & Moore, Inc., Shaw-Box Crane & Hoist Div., Muskegon, Mich. (Item 312)

Line Temperature Detector

Point monitoring of temperature is further developed with this Line Temperature Detector. The detector is responsive to thermal conditions over its entire length, in essence being a multi-point monitor covering an infinite number of points.

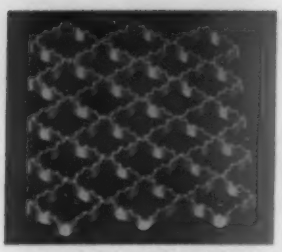
Operation of the Line Detector is based on the temperature-resistance relationship of selected eutectic salt mixtures. These salts are packed into an Inconel tube, and surround a nickel wire center conductor. When temperature reaches the set point, a short circuit is caused between the center conductor and outer tube, which, in turn, is sensed by a control unit to actuate an alarm or other working device.

The tubing may be bent to most desired configurations in difficult locations and with irregular shapes. Standard elements may be connected in series to form lengths of several hundred feet; and in one system, several different temperatures can be detected.

Modified for general industrial use, the detectors can be used for nuclear reactors, catalyst beds, bearing overheat, petroleum processing, grain storage and other uses where detection of random "hot spots" is desirable.

Fenwal Inc., Pleasant St., Ashland, Mass. (Item 313)

For More Information—Circle Item Number on Reader Service Postcard



Safety Grating

Protecto safety grating and structural grille assembly consists of descaled, skid-proofed bars formed into a honeycomb design and welded by an hydroelectric pressure method. Basic steel shot descaled bars provide rust and scale-free surface for painting or other finishing.

The gratings have a plain surface on one side, and a non-skid serrated edge to reduce slipping in the direction of bearing bars, even when submerged in grease.

The honeycomb provides rigidity. It weighs 3 lbs. per square ft. The open areas permit ready passage of light and air, when used as safety flooring on outdoor installations. Ice coating breaks through with slight weight pressure.

Bustin Steel Products, Inc., Dover, N. J. (Item 314)

Portable Safety Shield

This shield has been designed for welding, grinding and other metal manufacturing operations. The curtain is made of heavy-duty olive drab duck, treated with U. L.-approved Hooper Fire Chief flame-resistant finish, and it is guaranteed water and mildew resistant. The curtain wraps around the metal frame and is secured by heavy-duty rust-proof snap fasteners.

The frame is built of heavy tubular steel and steel connecting rods and is rust-proof black oxide finish. The rods are inserted into the open ends at the top and bottom of the tubular uprights and held in place by the curtain.

The shield has no hooks, bolts, screws or wires, and no tools are required to assemble or take it apart. It is available in four sizes.

Singer Glove Mfg. Co., Special Products Div., 860 Weed St., Chicago 22, Ill. (Item 315)

Load Transfer Wheel

A load transfer wheel attachment to the Shop Caddy takes the load from the operator and keeps it on the Caddy, making it possible to truck the load with less effort.

By lifting the load—with the 4-speed hydraulic Shop Caddy pump—to the correct height indicated on the side frame, the Caddy automatically rests on the load transfer wheel attachment. The operator then pushes.

The Caddy lifts from the floor, moves and lowers loads up to ¼ ton. It can be used in shops, shipping rooms, for lifting machinery, moving appliances, installing dies.

Grand Specialties Co., 3101-29 W. Grand Ave., Chicago 22, Ill. (Item 316)

Non-Combustible Diffuser Panels

A Non-Combustible Louver Diffuser Panel, compression-molded of a plastic compound, is non-electrostatic, and will not sag, buckle, warp or bend.

The 24-in.-square panels, "NC Gratelites," have UL approval with a listed flame-spread rating of 25. The plastic neither burns nor shrinks when heat is applied. Another advantage is their open-cubicle construction, which permits a free flow of air from the lighting fixtures above.

The panels, anchored by a patented suspension system, may be installed over an entire ceiling area below the lighting source and the air conditioning system. They are also UL-approved for installation below sprinkler systems.

The ⅜-in. open-cubicles making up the panels provide a built-in breathing action, which permits the lamps to operate cooler and at the same time provide high-intensity lighting with a minimum of reflected glare.

Edwin F. Guth Co., 2615 Washington Ave., St. Louis 3, Mo. (Item 317)

Fire Resistant Paint

Fire-Poof paint chemically snuffs out flame and eliminates smoke.

The photograph shows the results of a two-minute blowtorch test upon two ¼-in.-thick panels. The panel at right was unpainted; the one at the left has been Fire-Poof painted. In two minutes of flame application, the unpainted section had burned through and was left blazing, while the Fire-Poof coated section was scorched, without remaining flame or smoke.

When applied to metal surfaces, Fire-Poof prevents rust and corrosion, and eliminates sweating on pipes. The paint comes in an assortment of colors.

Nor-Chem Products, Inc., 27 Haynes Ave., Newark 12, N. J. (Item 318)

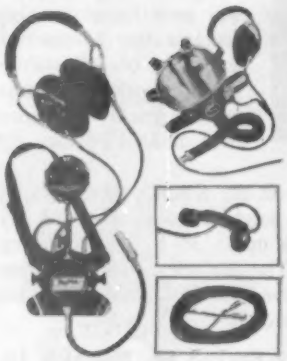
Dust-Control Agent

Sani-Dust sanitizes floors, walls and equipment in 15 minutes after treatment. It is applied as a dust control chemical to cleaning cloths and mops. It also provides a 30 per cent brighter floor and has been approved for hospitals.

It can be used on wood, tile, metal or plastic composition floors, shelving counters, desks and all dust-

collecting surfaces. It is used in institutions, factories, stores and offices.

Talb Industries, Inc., Front & Master Sts., Philadelphia, Pa. (Item 319)



Sound Powered Systems

3-D Sound Powered Systems for Scott Air-Paks offer safety and efficiency by maintaining "voice-touch" with men in danger areas.

The microphone is permanently installed in the face piece. The single head set permits communication with the "outside" and also allows hearing nearby sounds. Since the voice supplies the power, no batteries or power connections are necessary.

Capable of operation in explosive atmospheres without generating sparks or static, the systems are also designed for underground applications where communication is vital and radio can be "shielded out." They are built to government specifications.

Coma Corp., 718 Norman Place, Westfield, N. J. (Item 320)

Industrial Cleaner

A motorless cleaner, the Pick-A-Back, feeds into a nylon dust-receiving bag carried on the back of the operator. Or using a 10-ft. exhaust hose, the operator can hook the receiver over any handy object.

The Castered Tank model feeds into a tank container that cleans and washes suction air before exhausting it to the atmosphere. The Recovery model has the features of the Castered Tank model, plus *dry recovery* for reclaiming collected material for reuse.

The cleaner's actuator wrench can be converted from one size wand to another, with no wrench required. The unit operates from the present compressed air supply, and uses 12 cfm at 93 psi, if held open continuously.

The cleaner has only two moving parts. Compressed air at 93 psi provides 7,800 distinct blasts per minute and with no spark hazard.

An air jet at the tip of the actuator shoots air forward, enabling the operator to blast dirt from cracks and corners, and then switch back to suction. The unit handles dust, metal and food particles up to the size of wheat.

Vibro-Pneumatic Cleaner Cor., Div. of Patterson Products, P. O. Box 117, Detroit 2, Mich. (Item 321)

Soft-Face Hammer

A Soft-face Mechanic's Hammer is tough, lightweight and has no exposed metal parts. It is nonsparking. Its replaceable tips in medium or tough hardness can be changed for any job or surface. The plastic tips won't mushroom or flake off, and are resistant to grease, oil, gasoline and common acids.

A fiberglas shaft is permanently anchored to the head and handle. The hammer offers many advantages over rawhide, rubber, lead, copper, and other types of soft face hammers. It can be used on threads, soft metal, autobodies, leather, and painted, polished or plated surfaces.

Proto Tool Co., 2209 Santa Fe Avenue, Los Angeles, Calif. (Item 322)

Waste Material Receptacles

These receptacles have slip-on, self-locking rubber bumper for safety. The bumpers protect walls, and rubber feet prevent floor scratch, noise and assure longer life for the receptacles.

The receptacles also are equipped with a new rust-proof, cadmium-plated hook for holding liners. Three types of liners are available: galvanized steel, canvas and plastic.

Disposador Mfg. Co., 1855 Industrial St., Los Angeles 21, Calif. (Item 323)

Tool Grips

Vari-colored tool grips of Hycar nitrile rubber, are for machine shops, maintenance areas, etc.

These grips reportedly make tools easier and safer to use.

The grips will not become soft and sticky when in contact with oils and greases. The product has abrasion resistance, strength, flexibility, and resistance to oils, greases and chemicals.

B. F. Goodrich Chemical Co., 3135 Euclid Ave., Cleveland 15, Ohio (Item 324)

Tripurpose Vacuum

Model P-1008 Master Vac can do the work of a wet or dry cleaner, a blower and a portable shoulder vacuum.

This concept eliminates need for an outside filter bag, while maintaining efficiency. The innovation is made possible by patented pleated filter which supplies, 1,800 sq. in. of filtering area.

With its 20-gal. tank, the P-1008 is said to eliminate the need to convert to a makeshift vacuum with a steel drum conversion unit. The vacuum has oversized wheels, a push-type handle and large tank. Emptying is simplified, because the handle, cover, motor and filter are removed as one unit, leaving the tank to be rotated back on the rear wheels for dumping. The top-mounted unit, when detached, becomes a blower or a convenient shoulder vacuum.

Although a 20-gal. tank is standard, the P-1008 is available at extra cost with a Poly-Vinyl-Chloride tank lining. This coating is resistant to chemicals and abrasion.

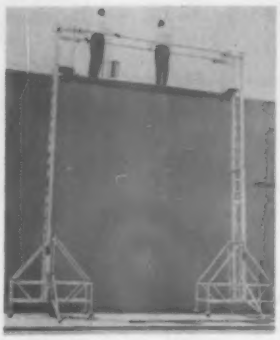
Premier Co., Dept. KP, 755 Woodlawn Ave., St. Paul 16, Minn. (Item 325)

Yard Ramp

The E. I. W. Lifetime Yard Ramp is an all-steel "bridge on wheels" for yards and warehouses. It has a load capacity of 15,000 lbs., and is rolled into position on 16-in. rubber tire wheels, which can be raised and lowered hydraulically. The Yard Ramp is available in various lengths, so the inclines will not exceed 10 degrees.

All decks are 70 in. wide. The deck riding surface is checked steel plate. Stringers prevent trucks from running off the sides.

Elizabeth Iron Works, Inc., Box 360, Elizabeth, N. J. (Item 326)

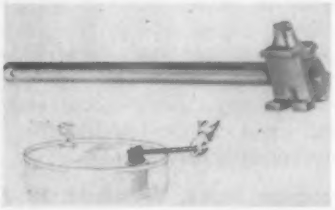


Bridging Equipment

30-ft. span bridging equipment may be used with twin Tallescope aluminum alloy towers for assembly of adjustable-height work platforms with vertical clearance over floor obstacles up to 24 ft.

The bridge is installed on the ground, tilted upright and hoisted to the desired height. It locks automatically to towers for width spans up to 30 ft. without using nuts, bolts or loose parts. The unit telescopes for rolling under trusses, pipes and overhead installations. It folds for rolling through standard 30-in. doorways.

Up-Right Scaffolds, 1013 Pardee St., Berkeley 10, Calif. (Item 327)



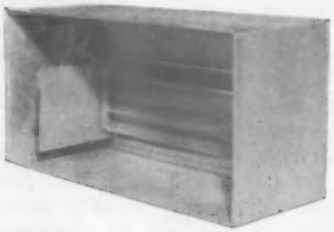
Drum Plug Wrench

A Drum Plug Wrench that will fit over 95 per cent of currently-used bungs is available in Safety Bronze, as well as Steel Alloy. Seven projections and five slots conform to the various bungs.

Lightweight, balanced and built for long service, the wrench has a 16-in. steel tube handle that gives adequate leverage to open the ¾-in. or 2-in. bung.

Model 61 Wrench is used to remove bungs from non-volatile fluids. Model 61M Bronze Non-sparking Wrench is designed for hazardous areas.

Morse Mfg. Co., Inc., 727 W. Manlius St., E. Syracuse, N. Y. (Item 328)



Ventilator

A ventilator, called the Thermvent, helps to cut heat losses, improves ventilation, and provides increased safety in fires. Units are equipped with a self-contained thermostat which automatically regulates the flow of air according to temperature changes.

Louvers close in cold weather to prevent heat loss, and open in warm weather to allow air circulation for cooling. The units require no wiring or servicing, and come in a range of sizes and models.

A fusible link control, available on models, automatically closes the louvers during a fire. These units would be helpful for ventilation of hazardous material storage or process rooms, or electrical substations. Other models would vent hot gases in case of fire.

The unit fits into a standard block wall and is recommended for residential and commercial use.

Zerhan Industries, Inc, 3305 W. Lafayette Blvd., Detroit 16, Mich. (Item 329)

Electric Plants

Eleven electric plants have been designed for Civilian Defense and for national or local emergency use.

Models range in size from 1 through 15 kw, and reportedly exceed performance requirements of Federal Civil Defense Administration specifications.

Among features are total output terminals and engineering that permits the electric plants to operate at full-rated capacity at elevations up to 5,000 ft; radio shielding; fungicide protective coating; electric start and remote control; four-cycle engines; and instrumentation that enables units to be operated by inexperienced persons.

More than half of the models are available with dual voltage and varied electric outlets. The models have been engineered so switch-over from public to generator power in time of emergency is relatively easy.

Pacific Mercury, 14052 Burbank Blvd., Van Nuys, Calif. (Item 330)

Power Sweeper

Power sweepers may now be leased from this manufacturer without capital expenditure.

Through the reduction of sweeping time by using these machines, the sweepers pay for themselves.

The sweepers are available by lease plan. With monthly lease payments as low as $150 per month, the sweepers can be paid for out of operating funds in as few as 12 months, while providing the sweeping equivalent of 10 men.

These sweepers range in size from 30-in. to 72-in. and are designed to handle every sweeping problem.

Wayne Mfg. Co., 1276 E. Lexington Ave., Pomona, Calif. (Item 331)

For More Information—Circle Item Number on Reader Service Postcard

NEWS ITEMS

R. A. Hogan

Minerals and Chemicals Corp. of America Speed-Dri Division

Speed-Dri Division has announced the death of Robert A. Hogan, former sales manager. Mr. Hogan had been with the company since 1949, and had served as sales manager of Safety and Maintenance Company prior to its acquisition by Minerals and Chemicals Corporation. A resident of Union, N. J., he was 56 years old.

Minnesota Mining & Manufacturing Co.

Carl T. Vangsness has been promoted to sales supervisor for "Scotch-Shield" brand aluminized fabric.

He will be responsible for the range of markets, military and commercial, in which heat protective garments are used. He has been with the company since 1948, and has been associated with aluminized fabric since its early development.

Fire Equipment Manufacturers' Assn., Inc.

A reorganization of the sales and marketing committee has been made. Fred S. Buckley, Walter Kidde & Co., Inc., is now chairman, and the members include W. E. Morgan, Jr., Walter Kidde & Co., an alternate; W. P. Barwinkel, American LaFrance Div.; with G. J. Halpin, American LaFrance Div., as an alternate; A. C. Trautwein and Don O. Wood of The Fyr-Fyter Co. as his alternate. Other members are L. C. McKesson, Ansul Chemical Co.; Arthur Guise, Ansul Chemical Co., alternate; plus Stewart Boal, Randolph Laboratories, Inc.

R. J. Goodwin

Kelite Corp.

Ralph J. Goodwin has been appointed district sales manager for this manufacturer of industrial chemical compositions and equipment. For 2½ years, Mr. Goodwin has served as technical sales and service representative. He will be responsible for Kelite sales in the Chicago District.

Book Tells of Du Pont's Alcoholism Program

More than half of victims rehabilitated

A book springing from the Du Pont Company's success in rehabilitating alcoholics among its employees has been written by Dr. C. A. D'Alonzo, assistant director of the Medical Division, as a guide to control of alcoholism by individuals and organizations.

Titled *The Drinking Problem and Its Control,* the book has just been published by the Gulf Publishing Company of Houston, Tex.

Du Pont inaugurated an experimental plan of rehabilitating alcoholics 15 years ago as part of its preventive medical program for employees. It succeeded beyond expectation, saving the health, sanity, or even the lives of more than 900 men and women in that time. Its effectiveness has inspired other organizations in the United States and Canada to similar efforts.

Dr. D'Alonzo's book reflects the company's experience in the form of a guide for individuals and organizations confronted with alcoholism. An easy-reading volume of 130 pages, its purpose is to help people combat alcoholism—either their own or others'—by tracing the disease from beginning to "rock bottom" and spelling out the successful methods of arresting it.

It is significant that both the book and the program which generated it apply to living and working conditions which are normal. Du Pont's problem of alcoholism among employees is typical of the nation as a whole rather than exceptional. Its 85,000 employees form a cross section of the public and the proportion of them who are alcoholics is average.

A deliberate effort was made to seek out the alcoholics so they could be rehabilitated. Over the years 1,254 cases were "discovered." More than half of them—690—have been rehabilitated and almost 20 per cent more—240—were improved. For the rest the situation is unchanged or unknown.

Dr. D'Alonzo points out that unless an alcoholic is rehabilitated by some means, he invariably loses his health or his sanity, if not his life.

From the beginning in 1944, the work has involved two parallel activities: general work through management and employees to spread the idea and break down stigmas attached to alcoholism, and direct work with alcoholics through Alcoholics Anonymous to rehabilitate them.

It is the sort of thing that can be done successfully by any willing group or individual, according to Dr. D'Alonzo. He points out in the book that the effort to recognize the disease is a key factor in any attempt to do anything about it, whether by an individual or an organization.

Despite its success, the company still campaigns for the early recognition of symptoms of alcoholism, as the earlier it is recognized in a man or woman, the easier it can be treated. This and treatment of it as a disease are vital, according to the book.

Dr. D'Alonzo writes that the alcoholic must want help before the help will do any good; he cannot be forced into it. All too often that does not occur until he hits rock bottom. How he gets there, the stages he goes through, what to look for, and how he can be helped when ready, are all detailed in the book.

It ranges from social drinking to the tragicomic detail of the alcoholic's almost frantic search for places to hide his liquor supply, through the corrosion of "the shakes" to the struggle for sobriety. The simple, undramatic language of the book—even the parts which are semi-medical—makes the struggle of the man vivid.

It describes the alcoholic and the phases of the disease because recognition is vital. It relates how the disease affects the individual, medically and otherwise, and how those around him are affected. Most importantly, it covers medical and nonmedical treatments and shows how they can be made to succeed and it details the role of industry and family in meeting the problem.

TRADE PUBLICATIONS

These trade publications will keep you up-to-the-minute on new developments in safety equipment and health products. All catalogs are free, and will be sent without obligation. Just circle publication number on the Reader Service Postcard.

Floodlights

Crouse-Hinds new Bulletin No. 2714 is a miniature edition of the company's popular floodlight catalog. Included in the pocket-sized book is all the original material: How to Select Floodlights, General Purpose Floodlights, Heavy Duty Floodlights, Mercury Vapor Floodlights, Special Floodlights, Lighting for Hazardous Locations, Searchlights, Underwater Lighting, Floodlight Poles, Accessories, Installation Suggestions, and Lighting Calculations. Crouse-Hinds Co., Syracuse 1, N. Y.

For more details circle No. 400 on enclosed return postal card.

Portable Switches

Joy portable switches are the subject of new literature released by the Electrical Products Division, Joy Mfg. Co., Dept. S-80, 1201 Macklind Ave., St. Louis, Mo. Featured is the new Joy Pendant Push-Button Station, a weathertight, corrosion-proof design completely insulated and encased in Hycar, an improved synthetic rubber compound, and listed as available in 4-, 6-, and 8-button styles. Also included are illustrated descriptions of Attachable Pendant Toggle Switches, Molded-to-Cable Precision Switches, Standard Push-Button Switches, Side-Mounted Toggle Switches, and End-Location Toggle Switches.

For more details circle No. 401 on enclosed return postal card.

Vacuum Cleaner Applications

A "how-to" series of vacuum cleaner applications has been released in literature form by Doyle Vacuum Cleaner Co., 225 Stevens, S. W., Grand Rapids 2, Mich. Termed "Vacuum Cleaners in Action," this literature has to date included the subjects, Liquid Recovery from Floors, No. 811-A, Dry Vacuuming of Floors, No. 813-A, and Overhead Cleaning, No. 815-A. According to the company, this material will eventually incorporate all possible vacuum cleaning applications, and new sections in the series will be released regularly.

For more details circle No. 402 on enclosed return postal card.

Flame Failure Bulletin

Flame Failure Bulletin No. 523 highlights the safety factor of the unit in eliminating explosions, and points up its flexibility in application to oil, coal or gas installations. Features of the unit's working principles are covered in detail along with a diagrammatic sketch of installation. The bulletin emphasizes that the flame failure safeguard reacts only to a flickering flame and is a constant low cost monitor measuring maximum protection in a wide range of industrial or commercial combustion installations. Of special interest to engineers are the capsule descriptions of the principle of operation and the versatility of the unit as insurance against accumulation and building up of explosive gases and fumes within the furnace. Photomation, Inc., 96 South Washington Ave., Bergenfield, N. J.

For more details circle No. 403 on enclosed return postal card.

Protector Air Valves For Presses

A new brochure, 5735-PV, describing Type "PV" three-way protector air valves is now available from Clark Controller Co. 1146 E. 152nd St., Cleveland 10, Ohio. An operating unit and a standby safety unit, combined on one housing, provide maximum safety on devices with air clutches and brakes such as presses, shears, press brakes, and press welders. All normally operating components of valve are self-checked each cycle. If any fail to function properly, the standby safety unit stops the machine. The brochure includes complete description of the valve's operation, as well as power requirements and suggested specifications. It includes illustrations of other Clark devices for the control of presses and machines with air clutches.

For more details circle No. 404 on enclosed return postal card.

Materials Handling Equipment

A new 16-page catalog, No. 80-204, describes and illustrates the Lewis-Shepard complete line of materials handling equipment. The catalog offers specifications and illustrations on Rider Fork Lift Trucks; Rider Tractors, Narrow Aisle Rider Electrics, Electric Powered "Walkies" and Manual Equipment. An equipment selector chart gives quick visual reference to each type of equipment manufactured in every line of materials handling equipment. Lewis-Shepard Products, Inc., Dept. R9-26, 125 Walnut St., Watertown 72, Mass.

For more details circle No. 405 on enclosed return postal card.

Emergency Showers

Logan Emergency Showers and Decontamination Showers, Bulletin No. 59, 20-page catalog fully illustrates and describes the original multi-spray emergency shower with swinging gate actuator for laboratory, plant, or field use. Includes indoor, outdoor, frost-proof, portable, or mobile models for minimum, medium, or maximum effectiveness with optional eye-wash attachment. Logan Emergency Showers, Inc., P. O. Box 111, Glendale, Calif.

For more details circle No. 406 on enclosed return postal card.

Bio-Assay for Hazard Control

Users of radioactive materials processing uranium, thorium, and other nuclear materials and organizations handling toxic materials are generally advised to include bio-assays as a major part of their health protection programs. Controls for Radiation, Inc., 130 Alewife Brook Parkway, Cambridge 40, Mass., is expanding its bio-assay service, and describes criteria used by Con-Rad in designing bio-assay programs, as well as a description of analytical procedures employed in a new eight page brochure entitled, "Bio-Assays for Hazard Control."

For more details circle No. 407 on enclosed return postal card.

Dust Control

New data and information on dust control with Torit cyclone separators is now available from Torit Mfg. Co., Dept. KP-1, Walnut and Exchange Sts., St. Paul, Minn. The literature shows how one or a combination of Torit's eight cyclone separators can protect machinery investment, product quality, and employee health and reduce maintenance costs with fully effective dust control in a wide range of applications. Each model can be installed so it does not consume valuable floor space. The information sheets also include multiple rating tables, complete specifications, and a dimensional drawing.

For more details circle No. 408 on enclosed return postal card.

Fire Fighting Units

An information file folder on various fire fighting units has been produced by Fire Boss, Inc., 4117-B W. Vickery, Fort Worth, Texas. The company designs and fabricates dry chemical fire fighting units for use at airports, aircraft plants, oil refineries, gasoline plants, oil rigs, offshore drilling installations, manufacturing plants, or any place where fire is a hazard. The folder, with loose-leaf inserts, includes information on each individual unit produced by Fire Boss, plus a price list for all units and accessories.

For more details circle No. 409 on enclosed return postal card.

An Introduction to Noise Control

Industrial Acoustics Co., Inc., 341 Jackson Ave., New York 54, N.Y., has just published a 24-page brochure entitled, "An Introduction To Noise Control." Written for business executives unfamiliar with the methods of overcoming noise problems, the brochure offers a pictorial presentation of the many noise control products designed and manufactured by Industrial Acoustics. Included are noise control applications for air conditioning systems, the aviation industry, many industrial applications, and soundproof rooms for medical and research fields.

For more details circle No. 410 on enclosed return postal card.

Air Cleaning and Mill Ventilation

A new 16-page brochure, No. 234-Pi, which discusses and illustrates the air cleaning requirements in steel mill operations, has been released by American Air Filter Co., Inc., 215 Central Ave., Louisville 8, Ky. The bulletin has been prepared for consulting engineers who specialize in steel mills and for plant engineers particularly concerned with air cleaning and mill ventilation.

For more details circle No. 411 on enclosed return postal card.

Drum Lift

New bulletin describes a one-man Drum Lift, Model BM-3, for raising, transporting, rotating, and tilting and draining a fully-loaded 275-pound steel drum. Strains and back injuries and accidents from dropped loads can be prevented by the use of this hydraulic drum lift. Sterling Fleischman Co., 2218 Mary Lane, Broomall, Pa.

For more details circle No. 412 on enclosed return postal card.

Concrete Floor Repair

How hard, strong, tough, non-shrink repairs can be made to cracks, holes, and ruts in concrete floors is outlined and illustrated in Bulletin No. EPMM-4. The seven-top procedure for repairing damaged floors using Embeco pre-mixed mortar is covered with complete explanations and photos of each step in the operation. The Master Builders Co., Cleveland 3, Ohio.

For more details circle No. 413 on enclosed return postal card.

Industrial Truck Operators' Training Manual

The Automatic Transportation Co. has published a new Instructors' Manual to be used as a guide for industrial truck operators' training programs. Driver training pays dividends in safety, economy, efficiency, on-the-job time, lower maintenance costs, and better plant operation. This 20-page booklet is divided into six parts: theory of operation, good driving practices, details of construction in principal types of trucks, practical operation of the truck, and demonstration and written examination for the driver training. Photographs of Automatic industrial trucks are shown to illustrate the details of construction of each particular model manufactured by Automatic. Cartoons are also included to show how accidents happen and how to prevent them. Automatic Transportation Co., 149 W. 87th St., Chicago 21, Ill.

For more details circle No. 414 on enclosed return postal card.

Face and Eye Protective Equipment

Bulletin No. 35-F is a new, four-page condensed catalog of face and eye protection products. Illustrated are welding and chipping goggles, welding helmets, face shields, industrial respirators, and a variety of replacement lenses and plates. Sellstrom Mfg. Co., Palatine, Ill.

For more details circle No. 415 on enclosed return postal card.

Self-Sticking Safety Signs

Over 400 stock self-sticking accident prevention signs are described in a new eight-page illustrated catalog offered by W. H. Brady Co., 727 W. Glendale Ave., Milwaukee 9, Wis. Industrial safety programs can incorporate Brady self-sticking signs in a low cost marking program to reduce accidents. The wide range of stock signs available cover any safety or plant housekeeping situation. Twenty-six groups of signs—covering electrical hazards, fire hazards, first aid, industrial housekeeping, machinery, personnel, traffic, and general industrial signs—are included in the catalog.

For more details circle No. 416 on enclosed return postal card.

Non-Skid Safety Grating

The manufacture of a new economical safety grating and all-purpose grille for use in product assemblies and fabrication was announced by Bustin Steel Products, Inc., Dover, N. J. Called "Protecto" because of its effectiveness as a safety grating and all-round structural grille assembly, this new product offers many diversified applications for home and industry. The basic assembly consists of descaled, skid-proofed bars formed into a honeycomb design and welded by an exclusive hydroelectric pressure method. Basic steel shot descaled bars provide an excellent rust- and scale-free surface for painting or other finishing. "Protecto" gratings feature a plain surface on one side and, on the other, a non-skid serrated edge that completely eliminates slipping in the direction of bearing bars, even when completely submerged in grease. Plain surface "Protecto" is also available as well as end plates for assembling stair treads.

For more details circle No. 417 on enclosed return postal card.

Air Compressor

The M-S-A Diaphragm Type Air Compressor, designed to deliver clean air for applications involving one air line respirator or one air line hood, is described in Bulletin No. 1009-12. According to the illustrated announcement, the compressor is capable of delivering six cubic feet of air per minute at eight to ten pounds per square inch through lengths of hose up to 50 feet. Dimensional and construction details are presented, including such features as float-mounting, permanent lubrication, specially reinforced flexible diaphragms, stainless steel valves, and large-capacity intake filters. Application of the equipment to a variety of M-S-A facepieces, masks, and hoods is illustrated on the reverse side of the bulletin. Mine Safety Appliances Co., 201 N. Braddock Ave., Pittsburgh 8, Pa.

For more details circle No. 418 on enclosed return postal card.

Conversion Factor Chart

A reference table for engineers and other executives in wall chart form has been published by the Precision Equipment Co., 4411E Ravenswood Ave., Chicago 40, Ill. Included are common conversions such as inches to centimeters or watts to H. P., as well as many conversions that are difficult to locate in reference manuals. (Some such examples are atmospheres to Kgs/sq. cm, cm/sec to miles/hr, cu. ft. to liters, microns to meters, and quintal to lbs.

For more details circle No. 419 on enclosed return postal card.

To Help Preserve Your Floor Matting

An 11" x 14" card which carries instructions on the care of floor matting has just been produced by American Mat Corp., 1723 Adams St., Toledo 2, Ohio. Intended for posting in maintenance departments, the card covers 14 "do's" and "don'ts" on the preservation of mats.

For more details circle No. 420 on enclosed return postal card.

Fluorescent Safety Paint

A spectacular step forward in color for safety has been announced by Switzer Bros., Inc., 4732 St. Clair Ave., Cleveland 3, Ohio, fluorescent paint manufacturers. Said to be four times brighter than conventional safety colors, the five "DAY-GLO" fluorescent colors appear to glow from within, even under poor visibility conditions. They are expected to improve plant safety records by making hazardous objects more clearly visible from farther away, thus helping to reduce accidents. Any object can be seen sooner and at a greater distance if painted with "DAY-GLO," according to industrial safety engineers, who consulted with Switzer's in establishing five fluorescent colors as safety standards for industrial applications. The five colors are identified by unique and arresting names: Fire Orange, Blaze Orange, Rocket Red, Lightning Yellow, and Flash Green. Color charts, technical bulletins, and literature specific to industrial safety applications are available from the manufacturer.

For more details circle No. 421 on enclosed return postal card.

Nylon and Dacron Ropes

Du Pont Type 707 nylon and Dacron* polyester fiber have demonstrated outstanding properties as cordage fibers. Ropes of nylon and Dacron are utilized in many marine and industrial applications because of their superior performance or their lower over-all long-term cost. This bulletin, X-98, contains a brief discussion of important properties of ropes of these two fibers. E. I. du Pont de Nemours & Co., Inc., Textile Fibers Dept., Wilmington, Del.

For more details circle No. 422 on enclosed return postal card.

Hand Protection

New hand protection comes in an aerosol package. Called Protec-A-Hand, it is made with lanolin and glycerine. The new hand protection is designed for workmen to keep hands clean and germ-free, and to prevent dirt, grease, paints, varnishes, and other grime from clogging in the pores. In addition, it cuts daily washing time. Acrolite Products, Inc., 106 Ashland Ave., West Orange, N. J.

For more details circle No. 423 on enclosed return postal card.

Fire Hydrants

A new eight-page bulletin, No. 501 describes a completely new line of fire hydrants manufactured by Kennedy Valve Mfg. Co., Elmira, N. Y. The new fire hydrants, named the K-10 and the K-11, are completely redesigned and have a minimum number of parts. All working parts now can be removed easily for maintenance without excavation. Both hydrants feature O Ring construction. The K-10 is the regular model hydrant with bolted joint construction. The K-11 is the new, improved Safetop model with the famous Kennedy safety breakable section again utilized in the new design. Both conform to all A. W. W. A. specifications and are manufactured in 4", 4½", and 5-inch sizes with a wide variety of pipe end connections to meet every need.

For more details circle No. 424 on enclosed return postal card.

Wire Rope "Blue Book"

Finger tip index pops open 190 pages of vital information any time you need it. From industry's Blue Book of Wire Rope you'll get at your finger tips—What is 6x19 Classification? Why and How Lang Lay is different from Regular Lay. What is "Peening", "Rated Capacity", "Metallic Core", "Cable-Laid Rope"? You'll have such vital information as "Inspection", "Correct Spooling", "Constructions", "Sheave Maintenance", "Multiple-Rope Reavings," "Swaged Fittings," use and abuse of wire rope, etc. Macwhite Wire Rope Company, Kenosha, Wisconsin.

For more details circle No. 425 on enclosed return postal card.

Changeable Letter Signs

Handbook details effective methods for the most profitable use of copy boards. Chapters deal with the storage of letters, writing copy, spacking and display, and illumination techniques. Hundreds of useful slogans round out the booklet and provide a valuable reference. Wagner Sign Service, Inc., 216 Hoyne Ave., Chicago 12, Ill.

For more details circle No. 426 on enclosed return postal card.

Rubber Footwear

Brochure illustrates and describes a general line of industrial rubber footwear, from body boot through hip boot and arctic to conventional rubber. Also shown are neoprene oil, grease and acid resistant footwear with wide application in industry, farm, sport and outdoor repair. Beacon Falls Rubber Footwear, Div. of U. S. Rubber Co., Naugatuck, Conn.

For more details circle No. 427 on enclosed return postal card.

Cooler Fountains

Catalog illustrating and describing sanitary water cooler fountains, attractive and varied enough to meet any purpose. Complete with layouts, specifications and table of capacities. Halsey W. Taylor Co., North Park Ave., Warren, Ohio.

For more details circle No. 428 on enclosed return postal card.

Stretchers

Catalog defines a complete line of portable and emergency stretchers. Accessory devices are also featured. All models are illustrated. The Washington Products Co., 238 S. Fayette St., Washington C. H., Ohio.

For more details circle No. 429 on enclosed return postal card.

Full-Vision Visor Goggles

4-page brochure illustrates the various models of a full-vision visor goggle. Plastic goggle is said to be impact resistant and glare reducing. Construction features include a down-angle lens that is clear or tinted. Jones & Co., 861 Broad St., Providence 7, R. I.

For more details circle No. 430 on enclosed return postal card.

Tread Plate

Application and fabrication data are given in 8-page booklet on abrasive tread plate. Includes table of design data and sketches of suggested safety applications for this non-skid, corrosion-resistant flooring material. Aluminum Co. of America, 1671 "F", Alcoa Bldg., Pittsburgh 19, Pa.

For more details circle No. 431 on enclosed return postal card.

Wire Rope Slings

This 56-page booklet will help evaluate and select the proper slings for your plant. A glossary defines words and phrases commonly used in the wire rope field. Specification charts and review of underlying principles and performance included. Lowery Brothers, Inc., 9332 S. Anthony Ave., Chicago 17, Ill.

For more details circle No. 432 on enclosed return postal card.

Weed Killer

Those in the construction and utility industries will be particularly interested in this bulletin, which describes a weed killer for keeping your grounds free of weeds. Called "Ureabor," this chemical destroys vegetation, and prevents re-growth for a full season. United States Borax and Chemical Corp., 630 Shatto Place, Los Angeles 5, Calif.

For more details circle No. 433 on enclosed return postal card.

Plant Protection

For complete plant protection, your watchman must be rigidly supervised with a tape-recording watchclock. Literature describes how this tamper-proof "Guardsman" keeps him alert, gives you a minute-by-minute record of his activities. Detex Watchclock Corp., 76 Varick St., New York 13, N. Y.

For more details circle No. 434 on enclosed return postal card.

Cleaning Tissue

With these tissues, you can wipe plastic lenses of safety goggles without scratching or marring the surface. Because these tissue fibres possess a high wet strength, lens may be cleaned when fogged or wet without causing the tissue to shred or tear. Literature gives full details. Lensclean, Inc., 135 W. 25th St., New York 1, N. Y.

For more details circle No. 435 on enclosed return postal card.

Ventilators and Fans

Ventilators, blowers, exhausters, of the axial flow and centrifugal types, and fans, are pictured and described in this catalog. Suggested applications given for each product and diagrams giving dimensions and specifications included. Coppus Engineering Corp., 125 Park Ave., Worcester 2, Mass.

For more details circle No. 436 on enclosed return postal card.

Oil and Gasoline Containers

This catalog, fully illustrated, offers the company's complete line of oilers and oil and gasoline containers. Many of the safety cans are UL and FM approved. The catalog is notable for the wide variety of cans and oilers shown. Eagle Mfg. Co., Wellsburg, W. Va.

For more details circle No. 437 on enclosed return postal card.

Plastic Eye Protectors

Better resistance of plastic eye-wear to impact, chemicals, and sparks plus finer optical qualities are featured in this catalog. Retractable temples, lens shapes, colors and ease of lens changing are also noted. Line of plastic lens, glasses, goggles and face shields illustrated. Watchmoket Optical Co., 232 W. Exchange St., Providence 3, R. I.

For more details circle No. 438 on enclosed return postal card.

Heavy Duty Skin Cleanser

Complete line of industrial skin cleansers listed. Stress laid on heavy duty cleanser, cost, approval of hygienic authorities, and test quality also receive attention. G. H. Packwood Mfg. Co., 1545 Tower Grove Ave., St. Louis 10, Mo.

For more details circle No. 439 on enclosed return postal card.

Guide Pin Covers

Brochure describes and gives specifications on covers for guide pins for die sets to protect operator and guide pin. Available in covers for gap only or for entire pin and gap. Wiesman Mfg. Co., 31 South St. Clair St., Dayton 2, Ohio.

For more details circle No. 440 on enclosed return postal card.

Safety Hats and Welding Helmets

This bulletin shows a line of fiber glass plastic hats, caps, and welding helmets to shield the wearer from falling objects, impact hazards and welding spatter. Jackson Products Division, Warren, Mich.

For more details circle No. 441 on enclosed return postal card.

Swivel-Mounted Lights

This fully illustrated bulletin shows a variety of incandescent and fluorescent lights that are swivel-mounted for easy positioning as the work requires. Suitable models are included for benches, laboratories, machines, desks, etc. Swivelier Co., Inc., 30 Irving Place, New York, N. Y.

For more details circle No. 442 on enclosed return postal card.

Washroom Deodorizing

Descriptive folder shows how and where to use aromatic vaporizing cakes for control of odors in toilets, urinals, lockers, garbage, storage rooms, etc. C. B. Dolge Co., Westport, Conn.

For more details circle No. 443 on enclosed return postal card.

Industrial Safety Equipment

Protective gloves, aprons, sleeves and other industrial safety equipment are featured in this catalog, available from Charleston Rubber Co., 16 Stark Industrial Park, Charleston, S. C. Chemical reference charts for "Neo-Sol," "Hy-Sol" and natural rubber are included showing applications best suited for the particular type glove.

For more details circle No. 444 on enclosed return postal card.

Respirators

Respirators with 40 sq. in. double filters, which protect employees from pneumoconiosis and silicosis producing dusts are described in literature featuring the "Dupor" 40, available from H. S. Cover, P. O. Box 2508, South Bend, Ind.

For more details circle No. 445 on enclosed return postal card.

Safety Mirrors

Safety mirrors which provide the answer to dangerous blind corner problems in your plant or warehouse are presented in a bulletin by Lester L. Brossard Co., 540 N. Michigan Ave., Chicago 11, Ill. Covering "Klear-Vu" safety mirrors, the bulletin lists the different sizes available in both convex and flat styles.

For more details circle No. 446 on enclosed return postal card.

Protective Apparel

Folder illustrates and describes protective apparel made of aluminized tropic asbestos. Shown are: Leggings, gloves, sleeves, helmets, aprons, coats and suits. Wheeler Protective Apparel, Inc., 226 W. Huron St., Chicago, Ill.

For more details circle No. 447 on enclosed return postal card.

Safety Signs

Signs and tags for accident prevention are presented in the full color catalog C-3 released by Standard Signs, Inc., 3190 E. 65th St., Cleveland, Ohio. The many types of signs are printed in the different colors available and with the many messages which can be imprinted over or under the main eye-catching word.

For more details circle No. 448 on enclosed return postal card.

Foot, Toe and Shin Guards

Illustrated folder gives data on a variety of aluminum, steel and fibre guards, designed to be worn over shoes or clothing for the protection of toes, feet, shins and knees. Units can be worn separately or in combination. Ellwood Safety Appliance Co., 225 6th St., Ellwood City, Pa.

For more details circle No. 449 on enclosed return postal card.

Seecloth

Fogging and misting on workers' eye-wear and on transparent machine guards can be eliminated through application of "Seecloth" chemically treated fabric, which is described in literature published by Hygiene Research, Inc., 684 Broadway, New York 12, N. Y.

For more details circle No. 450 on enclosed return postal card.

Stretcher-Type Carrier

Four-page brochure details a Stretcher-Type Carrier for injured personnel, which does not require lifting and placing the victim upon the carrier. Rather, the parts of the carrier are flipped under the victim and fastened together. The brochure points out that any movement to a victim with a broken back or neck can result in greater damage, even death. Sarole, Inc., 228 N. Wood Ave., Linden, N. J.

For more details circle No. 451 on enclosed return postal card.

Combustible Gas Indicator

Illustrated bulletin gives details on a portable unit for detecting and measuring natural gas in two ranges: Lower explosive limit and the actual gas concentration. Diagrams show principle of operation. Johnson-Williams, Inc., Box 307, Station "A", Palo Alto, Calif.

For more details circle No. 452 on enclosed return postal card.

Noise Reduction Panels

Panels to isolate or enclose noise are featured in this illustrated bulletin. They

can be installed as ceiling-high or free-standing partitions, rolling panels, etc., and require no special tools to install. Elof Hansson, Inc., 711 3rd Ave., New York 17, N. Y.

For more details circle No. 453 on enclosed return postal card.

Ear Plugs

Illustrated folder describes a line of ear plugs designed to cut down all frequencies over the entire sound range. The plugs are flexible and mold themselves around high points and depressions of the ear canal for greater sound stoppage. Surgical Mechanical Research, Inc., 1905 Beverly Blvd., Los Angeles, Calif.

For more details circle No. 454 on enclosed return postal card.

Neo-Nylon Protective Clothing

Illustrated bulletin shows variety of welding safety clothing, welding curtains, etc., made from tear-resistant neo-nylon fabric. Garments can also be used for protection in breweries, lumber yards and foundries, come in many sizes and are light in weight. Robin W. Adair Co., Inc., P. O. Box 248, Avoca, N. Y.

For more details circle No. 455 on enclosed return postal card.

Floor Absorbents

A floor absorbent for oils, greases, fats, acids and soluble oils is explained in this bulletin. The fire-safe, non-combustible product is non-abrasive, but provides non-slip underfooting to reduce the danger of slipping accidents. Oil-Dri Corp. of America, 520 N. Michigan Ave., Chicago 11, Ill.

For more details circle No. 456 on enclosed return postal card.

Fire Extinguishers

Outlined in this illustrated folder is a brand of small-sized dry chemical extinguishers bearing the approval of UL. Construction details, applications, and size information are given for the extinguishers intended for use against Class B and C fires. Leeder Mfg. Co., 133 Woodside Ave., Briarcliff, N. Y.

For more details circle No. 457 on enclosed return postal card.

Industrial Work Gloves

Variety of neoprene and plastic coated gloves for men and women are pictured in this pocket-size folder. Gloves are in many weights and cuff lengths. Also includes comprehensive performance chart comparing wearing and chemical-resistant properties of different types. Hood Rubber Co., Watertown 72, Mass.

For more details circle No. 458 on enclosed return postal card.

Explosion-Proof Lantern

Featured in this illustrated bulletin is an explosion-proof hand lantern for use in hazardous locations. The 1500-foot beam lantern is UL listed for Class 1, Group D hazards, as found in dry cleaning plants, paint spraying departments, chemical plants, etc. U-C-Lite Mfg. Co., 1080 W. Hubbard St., Chicago, Ill.

For more details circle No. 459 on enclosed return postal card.

Steel Doors

Hand operated, mechanically operated, and power-operated Underwriters' labeled and non-labeled rolling steel doors, grilles, and shutters to meet every door requirement, are described and illustrated in 16-page catalog G-57. Complete specifications are given for each type, along with drawings and dimensions. R. C. Mahon Co., 6565 E. Eight Mile Road, Detroit 34, Mich.

For more details circle No. 460 on enclosed return postal card.

Steel Floor Plate

The hundreds of safety applications for A. W. Algrip Abrasive Rolled Steel Floor Plate in various types of buildings are outlined in Booklet AL-N1. An allowable uniform load table and a table of maximum sizes for plate from ¼" to ⅛" in thickness are given to assist in selection of the proper plate. Alan Wood Steel Co., Conshocken, Pa.

For more details circle No. 461 on enclosed return postal card.

Silencers

Series ADS Acoustic Discharge Silencers, designed to eliminate both high and low frequency noises caused by high velocity steam and air discharged to the atmosphere, are described in four-page bulletin 265. Specifications are given for optimum silencing, standard silencing, and for heavy industrial areas. Burgess-Manning Co., Libertyville, Ill.

For more details circle No. 462 on enclosed return postal card.

Press Guards

A pull-back type of guard that pulls the punch press operator's hands out of the danger zone and offers protection if the press repeats is described in a 4-page bulletin. Well illustrated, the brochure shows how the device's compact design requires no column in the aisle and how excessive pull-back of the hand is avoided. Safeguard Mfg. Co., Transylvania Road, Woodbury, Conn.

For more details circle No. 463 on enclosed return postal card.

Color Dynamics

Fully-illustrated book which explains the principles of Color Dynamics and how to use them in industry. It contains numerous practical suggestions. Pittsburgh Plate Glass Co., Paint Division, Pittsburgh 22, Pa.

For more details circle No. 464 on enclosed return postal card.

Skin Cleansers

Illustrated bulletin describes eight types of powdered soaps with suitable areas of application, and also gives data on bar and liquid soaps and on a new soap dispenser. Lightfoot Co., Inc., 360 Madison Ave., New York, N. Y.

For more details circle No. 465 on enclosed return postal card.

Eliminate Floor Hazards:

Florco and its role in elimination of floor hazards are covered in literature and samples available from the Floridin Co., Dept. T., P. O. Box 989, Tallahassee, Fla. The product can be applied to any type floor and will absorb liquids of all kinds Florco combines high absorption capacity with physical strength; it is one of the few materials of its type to meet Armed Forces specifications and be approved by the Underwriter's Laboratories.

For more details circle No. 466 on enclosed return postal card.

Explosion-Proof Floor Machine:

Bulletin introduces the Hild Model CX, first and only explosion-proof floor machine UL listed for Class 1, Group D, and Class 2, Group G. Plants, refineries and mills with explosive atmospheres will be especially interested. The manufacturer has a selection of static conductive brushes for scrubbing, polishing and dry scaping. A three-gallon tank on the handle converts the unit for fast floor-scrubbing. Hild Floor Machine Co., 1217 W. Washington St., Chicago 6, Ill.

For more details circle No. 467 on enclosed return postal card.

Emergency Showers

Emergency Showers and Eye Wash Fixtures providing instant protection against effects of caustics, chemicals, fire, fumes and other injurious materials to the eye and body are illustrated and described in this catalog available from Speakman Company, Wilmington, Del. Complete specifications and diagrams included.

For more details circle No. 468 on enclosed return postal card.

Portable and Warning Lamps

Over 100 special-purpose electric lights are illustrated in this 8-page catalog. Items range from pistol-grip searchlights to rotating warning lights. Prices, specifications, illustrations. Carpenter Mfg. Co., Somerville, Mass.

For more details circle No. 469 on enclosed return postal card.

Fire Fighting Systems

Foldout 8-pager shows how dangerous hazards, such as dip and quench tanks, chemical reactors, drying ovens, can be protected by fixed piping installations. Covers fog and foam sprinkler heads, related equipment. Rockwood Sprinkler Co., 38 Harlow St., Worcester, Mass.

For more details circle No. 470 on enclosed return postal card.

Machine Guards

Machine guards that keep press operators' hand from the danger zone, safeguard them through positive action, yet don't hinder production and smooth operation, are covered in a new bulletin. The line covers virtually every press need, including punch, toggle, embossing, and special presses. Devices are also available for drop hammers. Positive Safety Mfg. Co., 4409 Perkins Ave., Cleveland 3, Ohio.

For more details circle No. 471 on enclosed return postal card.

Spectacle-Type Goggles

Bulletin containing 4-pages, describes the new Multi-Fit Spectacle-Type Goggles with the new Multi-Fit Bridge. According to the manufacturer, these new goggles greatly simplify fitting problems. The Multi-Fit's one bridge size is guaranteed to fit more than 90 per cent of your employees. You make no bridge adjustment; no need to try several sizes in individual fitting. Fendall Co., 4511 N. Lincoln Ave., Chicago 25, Ill.

For more Details circle No. 472 on enclosed return postal card.

Utility Marking Outfit

Two-page circular illustrates company's Utility Marking Outfit. Eight type sizes, all interchangeable in Utility Holders, ranging from UH-¼ to UH-2½. Standard holder sizes and type capacities given. M. E. Cunningham Co., 1025 Chatteau St., Pittsburgh 33, Pa.

For more details circle No. 473 on enclosed return postal card.

Safety Guard Inserts

Literature describes a new Safety Guard Insert for grinding wheels. This radically

new Safety Guard Insert with its integrated revolving guard gives you the all-important safety factor with increased wheel strength and efficiency. Conforms to ASA Safety Code requirements for cup-wheel guards. Carroll Pressed Metal Inc., 133 Dewey St., Worcester 10, Mass.

For more details circle No. 474 on enclosed return postal card.

Fume Collector:

Bulletin No. 37E discusses a method of stopping welding fumes at their source. The bulletin also discusses the direct benefits of fume abatement in terms of safety, increased production, and satisfactory personnel relations. Ruemelin Mfg. Co., 3885 N. Palmer St., Milwaukee, Wis.

For more details circle No. 475 on enclosed return postal card.

Protective Apparel

A complete and comprehensive catalog covering the largest selection of protective apparel available on the market is available from Wheeler Protective Apparel, Inc., 224 W. Huron Street, Chicago 10, Illinois. It illustrates and describes: gloves, coats, pants, overalls, jumpers, fire entry units, finger cots, hand pads, arm and leg protectors, hip leggings, spats, knee pads, sleeves, hoods, helmets, aprons, leggings, chaps, blankets, curtains, power megaphones and many other items related to industrial protection. This catalog is so organized that it may be used as a safety handbook. The catalog is completely illustrated with photographs of every type of clothing required by the heat, abrasive or chemical industries.

For more details circle No. 476 on enclosed return postal card.

Tuffy Sling Handbook

A fully illustrated 40-page reference book that covers more than 80 subjects on Tuffy Slings and fittings is now being offered by the Union Wire Rope Corporation, 2224 Manchester Avenue, Kansas City 20, Missouri. Included in the new edition is new reference information condensed into handy chart form on sling types, dimensions and rated loads. In addition, the section Tuffy Sling fittings has been expanded to cover many fittings not previously shown, together with reference charts on sizes, rated loads, etc.

For more details circle No. 477 on enclosed return postal card.

Hand Pumps

Data Sheets describe high-vacuum and double-action piston units for handling petroleum and other liquids. Include photos and specs. These sheets supplement an earlier 8-page catalog showing accessories and assembly chart. Tokheim Corp., 1670 Wabash Ave., Fort Wayne, Ind.

For more details circle No. 478 on enclosed return postal card.

Floor Care

Booklet DR-1157 outlines, "Myco Method" of floor care, discusses individual maintenance plans for different types of floors. Also illustrates and describes cleaners, dressings, sealers, and other equipment for floor maintenance. Masury-Young Co., 76 Roland St., Boston, Mass.

For more details circle No. 479 on enclosed return postal card.

Tank Vents and Fittings

Catalog, 36 pages, is divided into two sections: Venting Fundamentals and Protecto-seal equipment specifications. Covers conservation and non-conservation venting fire protection, and maintenance. Lists accessories. The Protectoseal Co., 1928 S. Western Ave., Chicago 8, Ill.

For more details circle No. 480 on enclosed return postal card.

Sling Chains

Data Book No. 100 contains specifications and application instructions for Herc-Alloy Chain and Sling Chains, plus hooks and other accessories. Has special section on care, use, and inspection of Sling Chains. Columbus McKinnon Chain Corp., Tonawanda, N. Y.

For more details circle No. 481 on enclosed return postal card.

Protect Against Industrial Radiation

Radio activity, whether one likes it or not, is a day-to-day part of our present nuclear age. Consequently, detection of radiation, whether from fall-out, from nuclear power or process plants, from hospital or industrial wastes, or enemy action, is a continuing responsibility. Today, municipal fire, police, water, sewer, air pollution control departments need accurate, sturdy monitoring equipment to provide this protection. Illustrated technical literature gives full details on portable Gamma-Beta meters. Riggs Nucleonics Co., 717 N. Victory Blvd., Burbank, Calif.

For more details circle No. 482 on enclosed return postal card.

Ladders

A brochure describing a new line of Reinforced Fiberglas Ladders has been made available by Putnam Rolling Ladder Co. of New York, 32 Howard St., New York, N. Y. The Putnam Reinforced Fiberglas Ladder is said to be the toughest and most durable ladder ever constructed. As an added safety feature, non-slip rungs are covered with grit-embedded neoprene. The brochure describes in detail, a new idea in ladders—designed to meet the increasing needs of Chemical and Power Companies for a safe, lightweight, durable ladder that is non-conductive and resists chemical action.

For more details circle No. 483 on enclosed return postal card.

Hooks and Links

Catalog 58 covers line of safety equipment, with 6-page section on hooks with safety gates for snatch blocks, block and tackles, hoists, cranes. Gates prevent loads from slipping off. E. D. Bullard Co., 2680 Bridgeway Blvd., Sausalito, Calif.

For more details circle No. 484 on enclosed return postal card.

Overhead Doors

Two booklets Nos. 96 and 98 describe doors that roll up and doors that roll overhead. Both explain sealing mechanism, mechanics of track or roll systems. Discusses automatic controls and power lifts in detail. Full specs and sizes. Kinnear Mfg. Co., 1720 Fields Ave., Columbus 16, Ohio.

For more details circle No. 485 on enclosed return postal card.

Wooden Sole Safety Shoes

A folder that illustrates wooden sole safety shoes of various types for factories, foundries, steel mills, oil refineries, and water-proof boots, acid-proof shoes and strap on soles. Reece Wooden Sole Shoe Co., 13th St., and 41st Ave., Columbus, Neb.

For more details circle No. 486 on enclosed return postal card.

On-The-Job Feeding

Literature describes equipment for inside or outdoor industrial feeding. Mobile Canteens, food carriers and liquid dispensers illustrated. A portable, milk dispenser of light-weight, stainless steel is featured. Vacuum Can Co., 19 S. Hoyne Ave., Chicago 12, Ill.

For more details circle No. 487 on enclosed return postal card.

Safety Cans and Industrial Lanterns

Justrite 16-pages full color catalog includes literature on safety and oily waste cans, dispensing plunger cans. The illustrated catalog describes a line of utility lights, flashlights, railroad lanterns and carbide lamps. Justrite Mfg. Co., 2061 N. Southport Ave., Chicago 14, Ill.

For more details circle No. 488 on enclosed return postal card.

Mechanical Stirrups

Pamphlet illustrates swing stage and single stirrups equipped with either electric or air power controls for painting or cleaning buildings, bridges, window washing, exterior plastering, etc. Albina Engine and Machine Works, Inc., 2100 N. Albina Ave., Portland 12, Ore.

For more details circle No. 489 on enclosed return postal card.

Welding Accessories and Industrial Safety Equipment

Catalog illustrates a larger diversified line of welding helmets, electrode holders, weld cleaning hammers and protective clothing. Also shown are: helmet strap, combination skullguard and face shield, headrest helmets and industrial safety masks. The Fibre-Metal Products Co., Chester, Pa.

For more details circle No. 490 on enclosed return postal card.

Protection Against Industrial Dermatitis

Literature describes and illustrates "Skin-Cote" and how it helps reduce industrial dermatitis. Also contains comprehensive chart of chemicals and processes and the type of hand cream recommended for each. Boyer-Campbell Co., 8540 St. Antoine St., Detroit 2, Mich.

For more details circle No. 491 on enclosed return postal card.

Safety Solvents

Cleaning of motors and generators, and other equipment, quickly, efficiently and safely, with company's detergent action safety solvent is detailed and illustrated in Bulletin A-28. Describes uses in industry, and includes graphs showing evaporation cycles, optimum evaporation rate. Turco Products, Inc., 6135 S. Central, Los Angeles, Calif.

For more details circle No. 492 on enclosed return postal card.

Grinding Wheel Guards

Brochure describes various type guards for shaft equipment, angle grinders, sanders, polishers and other wheel grinders. The guards feature protection with adequate wheel exposure. Morrison Products Inc., 16816 Waterloo Road, Cleveland 10, Ohio.

For more details circle No. 493 on enclosed return postal card.

First Aid Kits

Wide variety of first aid kits for general and specific uses covered in this bulletin. Diagrams show how to use various medications and bandages. Pac-Kit Co., 175 Greenwich Ave., Greenwich, Conn.

For more details circle No. 494 on enclosed return postal card.

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Fiber Glass Foundation speeds window and canopy replacement in New CESCO Acid Hoods

• From CESCO comes another safety equipment development to help you cut the cost of replacing the window and canopy in hoods used for protection against acid and caustics. CESCO has simplified this time-consuming maintenance job by developing a new fiber glass foundation which can be disassembled or assembled in minutes. Here's all you do: remove window frame and air-tight molded rubber gasket by releasing toggle locks on sides of foundation. Replace window in frame. Position holes in hood opening to match those in foundation opening. Set gasket and window frame in position and lock.

CESCO Acid Hoods also feature the new Hed-Rite Headgear which is adjustable three ways: for head sizes, for overall strap length, for overhead strap position.

The materials used in the new Acitex and Neoprene Nylon Hoods shown are durable and strain-resistant, yet flexible enough to permit freedom of movement. Air-supplied models have a discharge tube mounted on the headgear, which is fed by a hose from an air valve suspended at the waist.

See your CESCO distributor or write our Chicago office for prices and complete information about CESCO Acid-Resistant Hoods.

CESCO

CESCO FOR SAFETY

CHICAGO EYE SHIELD COMPANY
3705 West Roscoe Street, Chicago 18, Illinois

Circle Item No. 18C—Reader Service Card

Way ahead in VISION... Way ahead in VENTILATION

NEW!

AO "Kool-Vent" Face Shield (No. 283)

Ever see a face shield *like this?*

It's a real "natural" — never before have you seen a shield like it with protection, vision and comfort combined.

There's no screen before the eyes to impede vision but plenty of 24 mesh screen elsewhere for good ventilation. The clear acetate window permits unobstructed vision. Workers can do a better job. No wonder this new AO Face Shield has been enthusiastically received wherever it has been shown. It is available with clear, green or aluminized windows.

Recommended for hot operations or *any* operation where a man wants the best combination he can get of vision and ventilation.

Back headband is fiber, adjustable, fits lower head snugly, comfortably. The long band slides within a fiber sleeve — permits easy nut adjustment for head size and prevents hair pulling.

AO H-3 Face Shield

— Same as AO #283 except entire window is acetate.

AO H-1 Face Shield For operations where no standard spark deflector or forehead guard is required. Adjustable elastic headband may be worn low on head for extra comfort. Standard leather sweatband and window, snap-on type.

FEATURES — AO 283 and H-Series Face Shields

- Slotted window permits expansion and contraction. Heat won't warp or distort.
- Most models with deep spark deflector.
- All vulcanized fiber parts of rugged construction (specification thickness).
- Windows set out extra inch for clearance and ventilation.
- Genuine leather sweatband, easily removed for sterilizing.
- Automatic friction joints. No turning or tightening.
- Jointed rear headgear for better fit and anchorage.
- Easy rear adjustment to head size.

Always insist on ® *Trademarked Safety Products*

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Circle Item No. 8C—Reader Service Card